

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2611.—Vol. LV.

LONDON, SATURDAY, SEPTEMBER 5, 1885.

PRICE SIXPENCE.
BY POST, £1 4s. PER ANNUM.

**J. H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER.**
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING STOCKS and SHARES (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Gas, Water, and Dock Shares, and all Miscellaneous Shares.
BUSINESS negotiated in STOCKS and SHARES not having a general market value.
Every week a GENERAL and RELIABLE LIST issued (a copy of which will be forwarded on application), containing closing prices.

MINES INSPECTED.
BANKERS: CITY BANK, LONDON.—SOUTH CORNWALL BANK, ST. ANSTELL.
TELEPHONE NUMBER 1003.

SPECIAL DEALINGS in the following (or part):—
Alkankoo, f. paid, 3s. 15 Great Laxey, £9 15s. 25 Phoenix United, 35s.
Almada (New), 3s. 20 Gunnis (Clit.), 6s. 50 Panulillo, £2 6s. 3d.
Bedford United, 12s. 100 Hoover Hill, 6s. 3d. 50 Prince of Wales, 7s. 6d.
Balkis, 6d. 50 Home Mines Trst. 15s. 100 Peatara, 1s. 3d.
Blodney, 25s. 100 Indian Consol., 4s. 3d. 100 Rio Tinto, 9s. 11s. 3d.
Bratsberg, 13s. 70 Javali, 2s. 6d. 100 Ruby (New), 6s.
Carn Camborne, 3s. 6d. 80 Kapanga, 3d. 20 Richmond, £3 17s. 6d.
Callao Bis, 4s. 6d. 25 Killifreth, 14s. 20 Roman Gravel, £4 10
Cartago, f. pd., 3s. 3d. 25 Kim North Block. 20 Schwab's Gully, £3 9
Colom. Hyd., 10s. 50 Kohinor B. 2s. 3d. 250 Shepherd United, 2s. 3
Cape Copper, £25 15s. 120 La Plata, 5s. 3d. 100 Spitzkop, 5s.
California, 2s. 3d. 25 La Trinidad, £4 7s. 6d. 100 South Caradon, 4s. 6
Colorado, £2 18s. 25 Leadhill, £2 6s. 3d. 10 South Condurrow,
Canada Copper, 3s. 250 Lisbon-Berlyn, 1s. £6 15s.
Chontales, 3s. 25 Marke Valley, 3s. 100 South Darren, 8s. 9d.
Copiapo, £3. 15 Mason-Barry, £8 11 3d. 50 Tacuah, 1s. 3d.
De Beers, 4½. 20 Montana, £2 11s. 3d. 50 Tambracherry, 3s. 9d.
Denver, 6d. 50 Mysore Gold, 35s. 20 Tolima A., £3 5s.
Devon Con., £2 3s. 9d. 150 New Chile, 15s. paid, 20 ditto B., £2 7s. 6d.
Devon Friend, 9d. 100 Nacupai, 1s. 3d. 100 Transvaal Gold, 1s. 6d.
Dolcoath, £7 3d. 100 New Caradon, 1s. 20 Trevaunance, 43s. 9d.
Don Pedro, 17s. 6d. 25 New Emma, 6s. 3d. 40 Utd. Mexican, £2 11 3
paid. 25 New Kitty, 12s. 50 Van, 32s.
Drakewalls, 3s. 6d. 150 Nouveau Monde, 1s. 150 Victoria Gold, 3s. 9d.
East Blue Hills, 27s. 6 40 New W. Caradon, 1s. 30 Violetta, 21s.
Eberhardt, 3s. 6d. 200 Penegargreg, 21s. 70 Wassau Gold (offer
East Lovell. 50 Nine Reefs, 3s. 6d. 70 wanted).
El Callao, 45s. 50 Oregum, 2s. 9d. 20 West Basset, £2.
Frontino, 13s. 6d. 70 Organos, 6s. 9d. 10 Wheel Agar, £19 10s.
Frongoch, 7s. 3d. 100 Orita, 20s. 50 Wheel Basset, £6 17 6
Goguan, 1s. 3d. 100 Oscar, 6s. 3d. 50 West Caradon, 1s.
Gold Coast, 1s. 20 Oscar Vendors, fully 50 West Polbreen, 13s.
Gold Hill, 1s. 9d. paid, 4s. 3d. 50 West Kitty, 2s. 6
Green Hill, 3s. 6d. 20 Penegargreg, 21s. 50 Wheel Coates, 2s.
Green Hurth. 100 Polbreen, £2 1s. 3d. 20 Wheel Crebber.
Great Holway. 100 Potosi (New), 5s. 20 Wheel Kitty, 14s.
100 Port Phillip, 1s. 6d. 50 Wynand Perseu., 1s.

BUSINESS at CLOSE PRICES in all marketable TIN, COPPER, LEAD, SILVER, and DIAMOND SHARES.
SHARES SOLD for the USUAL FORTNIGHTLY SETTLEMENT.
SHARES SOLD at SPECIAL PRICES for FORWARD DELIVERY (ONE, TWO, or THREE MONTHS) on DEPOSIT of TWENTY PER CENT.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

HOME RAILWAYS.—SPECIAL BUSINESS.—Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS.—FORTNIGHTLY ACCOUNTS OPENED
ON RECEIPT OF THE USUAL COVER.
RUSSIAN.
SPANISH.
TURKISH.
URUGUAY.
* SPECIAL BUSINESS in the above Stocks.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

AMERICAN, CANADIAN, AND FOREIGN RAILS.—SPECIAL
BUSINESS. Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

BANK, OMNIBUS, TRAMWAY, GAS, WATER, and CANAL
SHARES.
BUSINESS in all the above, and for fortnightly accounts opened.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS SHARES of all DESCRIPTIONS BOUGHT
or SOLD. SPECIAL BUSINESS in:—
IRON and COAL.
ELECTRIC LIGHT.
And other COMMERCIAL or INDUSTRIAL SHARES.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

NOTIONS in all STOCKS and SHARES dealt in.—
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

DIAMOND SHARES OF SOUTH AFRICA.—
ADAMANT DIAMOND. FRENCH DIAMOND.
ANGLO AFRICAN. KIMBERLEY CENTRAL.
DE BEER'S. KIMBERLEY NORTH BLOCK.
FRENCH AND D'ESTERRE. PHENIX DIAMOND.
DIAMOND. SCHWAB'S GULLY.
BUSINESS in the ABOVE at CLOSE MARKET PRICES for USUAL FORTNIGHTLY SETTLEMENT.
SHARES SOLD for FORWARD DELIVERY (ONE, TWO, or THREE MONTHS) on DEPOSIT of TWENTY PER CENT.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

SCHWAB'S GULLY DIAMOND SHARES.—
DE BEER'S DIAMOND SHARES.
SPECIAL BUSINESS in the above, either for CURRENT SETTLEMENT or FORWARD DELIVERY (one, two, or three months), on DEPOSIT of TWENTY PER CENT.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

THE RISE IN LEAD.—LEAD SHARES.—SPECIAL BUSINESS.
Hollywell District. South Darren.
Leadhills. Van.
Roman Gravel. Weardale.
Shares in the above for sale either for CURRENT SETTLEMENT or for FORWARD DELIVERY (one, two, or three months), on DEPOSIT of TWENTY PER CENT.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

GOLD AND SILVER MINES.—INDIAN, NORTH AMERICAN,
SOUTH AMERICAN, WEST AFRICAN, SOUTH AFRICAN, and
MEXICAN Mining Shares.
BUSINESS as BUYER or SELLER in all the above.
Shares Sold for Fortnightly Account.
Shares Sold for Forward Delivery (one, two, or three months) on deposit of TWENTY PER CENT.
JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, LONDON, E.C.
ESTABLISHED 1842.
LONDON BANKERS.—THE CITY BANK.

TO SHAREHOLDERS AND INVESTORS IN
BRITISH, FOREIGN, AND COLONIAL MINES.

PARTICULARS GIVEN as to the FOLLOWING MINES, &c.
Devon Great Consols, Montana, Richmond, Roman Gravel, Leadhills, Colorado United, Santa Barbara, Frontino and Bolivia, Dolcoath, East Pool, Great Laxey, Van, Birdseye, Wheel Crebber, Cape Copper, South Frances, Miners, Mysore Gold, Drakewalls, Wheel Agar Cook's Kitchen, Wheel Grenville, West Wheel Seton, Botallack, Mason and Barry, Rio Tinto, Almada, and Tiritio, Quebrada, St. John del Rey, and others.
Investment in Mines, the Money Market, Half-yearly Dividends, the Hoped for Revival, Mining Share Markets, Lead Mines, Lead Markets, Tin and Copper Mines, Good Harvest Prospects, Dividend and Progressive Mines, Share Lists.

THE BRITISH AND FOREIGN MONTHLY MINING NEWS
For SEPTEMBER, No. 681, containing information as to the above, and other British and Foreign Mines, the Mine Share Markets, Lead, Tin, and Copper Mines, and Metal Markets, &c., with advice as to Purchases and Sales of Mine Shares, is now ready, and will be forwarded to Subscribers on application.
Annual subscription, 5s.; each copy, 6d.

Messrs. PETER WATSON & CO., STOCK & SHARE DEALERS,
18, AUSTIN FRIARS, LONDON, E.C. (near to the Stock Exchange.)
BANKERS: THE ALLIANCE BANK (Limited).

All business communications and telegraphic messages to Buy or Sell Railways, Banks, British or Foreign Mines, and other Stocks and Shares punctually attended to. Every information can be obtained on personal application or by letter as to Purchases and Sales.

MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,
3, GEORGE YARD, LOMBARD STREET, E.C.
ESTABLISHED 1853.
(NEARLY 19 YEARS IN OLD BROAD STREET.)
TELEPHONE No. 10,338.

MINING SHARES SYNDICATE.—In order to suit the convenience of many Investors in MINING SHARES, MR. ALFRED E. COOKE has decided to open a SYNDICATE for operations in BRITISH or FOREIGN MINES. No commission will be charged. The SYNDICATE will be closed, if possible within a month. Fully Paid Shares are £5 each, and any number of shares from 1 to 100 may be applied for.

STOCK EXCHANGE SYNDICATE.—At the request of clients, MR. ALFRED E. COOKE has decided to open a SYNDICATE for conducting speculative operations in English RAILS, Foreign Stocks, &c. No commission will be charged. FULLY PAID SHARES are £5 each. Any number of shares from 1 to 100 may be applied for. The SYNDICATE will, if possible, be closed before the MID-SEPTEMBER SETTLEMENT. Each subscriber will be advised of the business done.
REMITTANCES for either SYNDICATE should be made by next WEDNESDAY MORNING.
BUSINESS TRANSACTIONS at CLOSEST CURRENT PRICES, FREE OF COMMISSION, in all STOCK EXCHANGE SECURITIES either for SPECULATION or INVESTMENT.

ALFRED E. COOKE, 3, GEORGE YARD, LOMBARD STREET, LONDON.
ESTABLISHED 1853.
BANKERS: ROYAL EXCHANGE (Limited), London.

MR. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
Has Special Business in the following for cash or settlement by arrangement free of commission:—

40 Almadillo.	90 Glenrock, 4s.	40 Panulillo, 41s.
70 Almada new, 3s.	40 Great Holway.	80 Potosi (New), 4s. 9d.
100 Alkankoo, 2s. 9d.	30 Great Laxey, £9 13s.	80 Prince Royal, 7s. 3d.
100 Balkis, 7d.	80 Home Mines, 14s. 9d.	50 Prince of Wales, 7s. 9
100 Bratsberg, 12s. 6d.	80 Hoover Hill, 5s. 9d.	30 Richmond, 33s. 4d.
80 Cartago, 3s.	100 Ind Consolidated, 3s. 9	20 Roman Gravel, £4½.
100 Californian, 3s.	40 Killifreth, 14s.	70 Ruby, 6s. 9d.
50 Callao Bis, 3s. 6d.	50 Kohinor B., 2s.	80 Rio Tinto, £3 7s.
45 Carn Camborne, 3s. 3	50 La Plata, 5s. 3d.	20 Schwab's Gully, £3½.
75 Chile Gold, 4s. 6d.	30 Leadhill, 4s. 6d.	70 Shepherd United.
100 Chontales, 2s. 3d.	80 Lisbon-Berlyn, 1s.	60 Sierra Buttes.
50 Colombian, 10s.	30 La Trinidad, 3l. 10s.	60 Transvaal Gold, 1s. 3d
25 Copper Queen.	40 Montana, 48s.	21 Tolima A., £3½.
25 Colorado, £2½.	50 Mysore Gold, 35s. 9d.	40 Tolima B., 47s. 6d.
70 Devala, 2s. 9d.	75 Nouveau Monde, 1s.	30 Trevaunance, 43s. 9d.
100 Denver, 7d.	50 Nundydoo, 5s. 3d.	25 United Mexican, £2½
3 El Callao.	80 New Emma, 6s.	40 Van, 31s.
30 East Blue Hills, 33s. 9	80 Orita, 21s. 3d.	50 Victoria Gold, 3s. 6d.
100 Eberhardt, 3s. 3d.	100 Oregum, 2s. 9d.	West Kitty, 47s. 6
100 Eton, 17s.	45 Organos, 6s. 9d.	W. Metal & Flow, 17s. 3
50 Frontino, 13s. 6d.	35 Oscar Gold, 6s. 6d.	30 Wheel Crebber, 18s. 6d.
The following SHARES WANTED for CASH:—	100 Frontino.	80 Mysore
50 Copiapo.	75 Montana.	50 Nundydoo.
150 Colombian.	75 Nundydoo.	50 Nundydoo.

Railways, Foreign Bonds, Gold and Silver Mines, Miscellaneous Shares, and all Stock Exchange Securities.
ESTABLISHED 1851.
BANKERS: LONDON AND WESTMINSTER.

MESSRS. H. HALFORD AND CO.,
STOCK AND SHARE BROKERS,
2, ROYAL EXCHANGE AVENUE, E.C.,
Have BUSINESS in ECTON COMPANY SHARES.
SELLERS are requested to communicate with the above.

MR. W. B. COBB, 29, BISHOPSGATE STREET, LONDON.
Special information and business in Tolima, Colombians, Frontino, &c., and other Mines in the United States of Colombia.

BEAZLEY AND CO., STOCK AND SHARE DEALERS,
6 AND 7, COLEMAN STREET, LONDON, E.C.
ESTABLISHED 28 YEARS.

BRITISH and FOREIGN MINE SHARES not quoted below BOUGHT and SOLD at CLOSE MARKET PRICES.
ALL BUSINESS DONE at NET PRICES for CASH, ACCOUNT, OR FORWARD DELIVERY.
SELLERS and BUYERS should send FIRM ORDERS at once.
CLOSING PRICES, FRIDAY, 4th SEPTEMBER, 4 P.M.

Buyers.	Sellers.	Buyers.	Sellers.
Almada..... 0 2 3	0 3 0	Montana..... 0 2 7	0 2 10
Bratsberg..... 0 11 3	0 13 9	Nundydoo..... 0 9 0	0 10 6
Balkis..... 0 0 4	0 0 8	Nouveau Monde 0 0 8	0 1 0
Callao Bis..... 0 3 0	0 4 0	New Potosi..... 0 4 3	0 5 3
Californian..... 0 3 3	0 2 6	New Chile..... 0 6 0	0 7 0
Colombian..... 0 9 3	0 10 6	Oscar, vendors.. 0 3 0	0 5 0
Colorado..... 2 12 6	2 17 6	Oscar, fully paid 0 5 0	0 7 0
Cartago, f. p. 0 2 6	0 0 0	Orita..... 0 13 9	1 2 6
Eberhardt..... 0 2 6	0 3 9	Organos..... 0 6 0	0 6 9
East Blue Hills 1 14 0	1 16 0	Oregum..... 0 2 0	0 2 6
Frontino..... 0 12 6	0 15 0	Prince of Wales 0 7 0	0 8 0
Killifreth..... 0 12 0	0 14 0	Prince Royal..... 0 7 0	0 8 0
Home M. Trst. 0 14 0	0 16 0	Ruby..... 0 5 3	0 6 3
Hoover Hill..... 0 5 9	0 6 9	Schwab's Gully 3 2 6	3 7 6
Indian Consol. 0 3 0	0 4 0	Untd. Mexican 2 7 6	2 12 6
Lisbon Berlyn.. 0 0 6	0 1 0	Van..... 1 7 6	1 12 6
La Trinidad..... 0 0 0	4 5 0	West Kitty..... 6 10 0	6 15 0
Leadhills..... 2 0 0	2 5 0	Wheel Crebber.. 0 18 0	0 19 0
La Plata..... 0 4 6	0 5 6	Wheel Metal..... 0 16 0	0 18 0
Mysore..... 1 16 3	2 1 3		

INVESTORS should send for BEAZLEY AND CO.'S LIST of CLOSEST PRICES, published every Wednesday, which will be forwarded on receipt of STAMPED DIRECTED ENVELOPE.

CASH PURCHASES.—SPECIAL FACILITIES for IMMEDIATE SETTLEMENT and DELIVERY of SHARES.
Shares supplied for FORWARD DELIVERY on BEST POSSIBLE TERMS.
BEAZLEY AND CO., 6 AND 7, COLEMAN STREET, LONDON, E.C.

METALS.—FRIDAY, 4 P.M.—TIN, £91 15s. 0d. to £92 5s. 0d.;
COPPER, £42 15s. 6d. to £43 2s. 6d.; IRON, market closed; LEAD, £11 7s.
BEAZLEY AND CO., 6 AND 7, COLEMAN STREET, LONDON, E.C.

MR. WILLIAM H. BUMPUS, STOCK BROKER
AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
[Established at this Address in 1867.]

BUSINESS transacted in ALL STOCK EXCHANGE SECURITIES, MINING and MISCELLANEOUS SHARES of every description.
An INVESTMENT LIST free on application.

SPECIAL BUSINESS in the undermentioned:—
100 Almada. 50 Eberhardt, 3s. 6d. 150 New Chile, 5s. 6d.
70 Alkankoo, 3s. 6d. 50 Frontino, 12s. 9d. 70 Oscar.
50 Bratsberg, 13s. 50 Great Holway, 31s. 50 Organos, 7s. 9d.
200 Balkis, 9d. 5 Great Laxey. 30 Orita, 23s.
25 Colorado, £2½ 150 Indian Consol., 4s. 3d. 25 Panulillo, £2½
100 Cartago, 3s. 6d. 30 Killifreth. 100 Prince of Wales,
150 Californian, 3s. 120 Kohinor B., 3s. 100 Richmond, £4½
100 Callao Bis, 4s. 6d. 25 Leadhills. 15 Roman Gravel,
100 Colombian, 11s. 6d. 150 Lisbon-Berlyn, 1s. 10 Rio Tinto, £3 15s. 3d.
5 Cape Copper, £26½. 200 La Plata, 5s. 3d. 100 South Caradon, 6s. 3d
20 Copiapo, £23½. 50 Montana, 48s. 9d. 200 Silver Peak.
100 Chontales, 3s. 10 Mason & Barry, £8 13 9 20 Trevaunance, 43s.
150 Denver, 9d. 100 Mysore, 41s. 25 United Mex. 52s.
250 Devon Friendship, 1s. 200 Nacupai, 1s. 20 Van, 33s. 9d.
25 Devon Con., 43s. 9d. 250 Nouveau Monde, 1s. 10 Wh. Grenville,
2 Dolcoath. 100 New Hoover Hill, 6s. 6 20 West Kitty, £2½.
50 East Blue Hills, 35s. 100 New Emma, 7s. 20 W. Gololphin,
2 East Pool. 75 New Potosi, 5s. 3d. 25 Wheel Crebber, 18s. 6d.
150 New Ruby, 6s. 9d.

Where prices are not inserted offers may be made.
WHEEL GRENVILLE and WEST GODOLPHIN shares recommended.
I have persistently advised the purchase of these shares for some months past, and still continue to do so, notwithstanding the advance that has since taken place.

WHEEL GRENVILLE are now firm at £11¼ to £11½, and will probably be much higher before the end of the year. The quarterly dividend, due this month, will be, at least 7s. 6d. per share, and the prospects of the mine are excellent.

WEST GODOLPHIN are now quoted 22s. 6d. to 27s. 6d., and are likely to have a further considerable advance in the near future. This mine is opening out well, and will, in all probability, enter the Dividend List at an early date.

MR. BUMPUS devotes SPECIAL ATTENTION to LEGITIMATE MINES, and is in a position to afford reliable information and advice to intending investors, and others in the selection of Shares either for INVESTMENT or SPECULATION. Correspondence invited.
ESTABLISHED 1867.

MR. CHARLES THOMAS,
MINING AGENT AND ENGINEER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. ALFRED THOMAS,
MINING ENGINEER, AND STOCK AND SHARE DEALER,
10, COLEMAN STREET, LONDON, E.C.

JUST PUBLISHED. Entirely re-written, post free, One Shilling.
SPARE CASH: WHAT SHALL I DO WITH IT? A work for the guidance of Investors.—Published by ALFRED THOMAS, M.E., 10, Coleman-street, London, E.C.
"Invaluable to those who cannot attend the markets."

ESTABLISHED 1852.
MR. HENRY J. TALLENTIRE,
STOCK BROKER AND MINING SHARE DEALER.
SPECIAL DEALINGS in all BRITISH and FOREIGN Mine Shares.
EVERY INFORMATION and CLOSE PRICES upon application.
OFFICES.—21, THREADNEEDLE STREET, LONDON, E.C.
BANKERS: CITY BANK, Threadneedle-street, E.C.

JOHN B. REYNOLDS,
STOCK AND SHARE DEALER,
37, WALBROOK, LONDON, E.C.
BANKERS: LONDON JOINT STOCK.

MR. J. GRANT MACLEAN,
SHAREBROKER AND IRONBROKER, STIRLING, N.B.

JOHN LENN AND CO. (LIMITED).
BANKERS, and DEALERS in STOCKS and SHARES.
CIRCULAR POST FREE ON APPLICATION.

IT CONTAINS the latest prices of Stocks and Shares, and also shows at a glance the return per cent. of all the leading Securities.
IT CONTAINS a List of Selected Investments paying from 5 to 20 per cent. per annum.

IT CONTAINS a List of Stocks and Shares "Wanted" and "for Sale."
SPECIAL DEALINGS in La Trinidad (Limited), Silver Queen United (Limited), Home Mines Trust, and other popular Investments.
JOHN LENN AND CO. (Limited).
4 and 5, Grocers' Hall-court, London, E.C.

THOS. ELS AND CO., STOCK AND SHARE DEALERS,
6, BOND COURT, WALBROOK, LONDON, E.C.
Daily price list may be had on application. Business in Foreign Stocks Railways, and all Stock Exchange Securities at closest prices.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 30 Years)
Can SELL the following SHARES:—

150 Almada, 3s. 3d.	30 Home Mines Trst., 15s.	40 Prince of Wales, 7s.
100 Alkankoo, 3s.	40 Holywell District Id.	40 Penegargreg, 21s. 3d.
50 Bratsberg, 13s. 9d.	50 Hoover Hill, 6s. 6d.	60 Ruby, 6s. 3d.
300 Balkis, 9d.	100 Indian Consols, 4s.	5 Rio Tinto, £3 17s. 6d.
50 Coedy-Feder, 15s.	50 Kohinor B., 2s. 3d.	10 Richmond, £3 15s. 3d.
200 Colombian Hyd., 10s. 6	50 La Plata, 5s. 6d.	80 South Darren, 9s.
200 Californian Gold, 2s.	10 La Trinidad, £4 6s. 3d	10 Schwab's Gully, £3 5s.
75 Callao Bis, 4s. 3d.	200 Lisbon-Berlyn, 10d.	75 Transvaal, 2s. 3d.
50 Chile Gold, 9s. 6d.	25 Leadhills, £2 5s.	60 Tregontrees and Old
100 Chontales, 2s. 3d.	20 Montana, £2 10s.	Polgooth, off. wntd
25 Colorado, £2 16s. 3d.	20 Mysore Gold, £2	30 U. Mexican, £2 12s. 6
80 Denver Gold, 8d.	125 Nouveau Monde, 1s. 3	100 Victoria.
25 Devon Con., £2 2s. 6d	50 Nundydoo, 5s. 9d.	20 Van, £1 12s. 6d.
50 Eberhardt, 3s. 6d.	75 New W. Caradon, 3s. 6	50 West Caradon, offe
25 East Blue Hills, 34s.	35 Organos, £1 7s.	wanted.
50 Frontino, 13s. 9d.	30 Orita, £1 1s. 3d.	30 Wheel Crebber, 18s. 6d
100 Glenrock, 3s. 3d.	25 Oscar Gold, 7s. 9d.	50 Yeoland Consols,
25 Great Holway.	20 Panulillo, £2 3s. 3d.	fully paid, off. wd.
	40 Potosi, 5s. 6d.	

Offers should be made for shares in the foregoing list when no prices are affixed.
LEAD MINES.—The advance and firmness in lead has caused, as I predicted, a demand for shares in mines producing this metal:—Holywell District, Coedy-Feder, Roman Gravel, Gt. Holway, and Leadhills are especially worth attention before any further increase in price results. Special business as buyer or seller.

PAR TIN.—Special business in 100 shares at 16s. 3d. for cash prompt.
BANKERS: ALLIANCE BANK (Limited).

A GUARANTEED 20 PER CENT. INVESTMENT.
TWENTY PER CENT. DIVIDEND, NOW PAYABLE.

LA TRINIDAD (LIMITED).—In Shares of £5 each, fully paid, with no further liability. Immediate Purchasers will secure the above Dividend. These shares continue in strong demand on the improved returns and prospects of the mine, and considerably higher prices must soon be reached.

Our Investment Circular, No. 447, on above Property, containing full details should be read by all investors. Post free on application to
ABBOTT, PAGE, and CO., STOCKBROKERS,
42, FOULTRY, LONDON, E.C.

Medal at Boston Exhibition, 1883.

Gold Medal, International Health Exhibition, 1884.

Gold Medal, International Inventions Exhibition, 1885.

FIRST AWARD.
SYDNEY. 1879.

BICKFORD'S PATENT FUSES

FIRST AWARD.
MELBOURNE, 1881.SILVER MEDAL OF THE MINING INSTITUTE OF CORNWALL, TRURO, 1880,
for an Improved Method of Simultaneous Blasting.

BICKFORD, SMITH AND CO.,

THE INVENTORS, AND ORIGINAL PATENTEES AND MANUFACTURERS OF

SAFETY AND INSTANTANEOUS FUSES AND IGNITERS

FOR USE IN ALL BLASTING OPERATIONS AND SPECIALLY PREPARED FOR ANY CLIMATE.

BICKFORD, SMITH AND CO.'S Patent Igniters and Instantaneous Fuses for simultaneous blasting are being extensively used at home and abroad. This improved method is the cheapest, simplest, and most dependable ever introduced for simultaneously firing any number of charges. For full particulars, see Descriptive Catalogue.

PRICE LISTS, DESCRIPTIVE CATALOGUES, AND SAMPLES TO BE HAD ON APPLICATION.

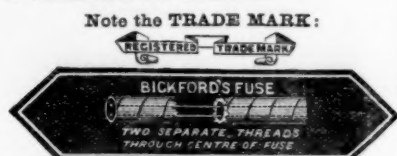
FACORIES—TUCKINGMILL CORNWALL; AND ST. HELENS JUNCTION, LANCASHIRE.

HEAD OFFICE—TUCKINGMILL, CORNWALL.

LANCASHIRE OFFICE—ADELPHI BANK CHAMBERS, SOUTH JOHN STREET, LIVERPOOL.

LONDON OFFICE—85, GRACECHURCH STREET, E.C.

Every package bears Bickford, Smith, and Co.'s copyright label.



Two Separate Threads through Centre of Fuse

FOR SIMULTANEOUS BLASTING.

R. S. NEWALL AND CO.,

Sole Patentees of Untwisted Wire Rope.

Iron & Steel Ropes of the highest quality for Collieries,
Railways, Suspension Bridges, &c.

PATENT STEEL FLEXIBLE ROPES AND HAWSERS.

IRON STEEL, AND COPPER CORDS.

LIGHTNING CONDUCTORS.

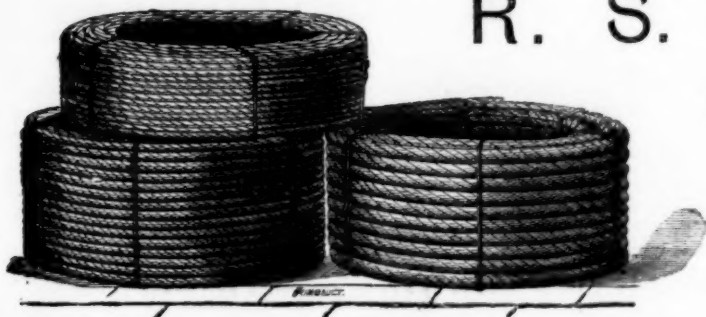
COPPER CABLES of high Conductivity for Electric Light and Power.

London: 130, STRAND, W.C.

Liverpool: 7, NEW QUAY.

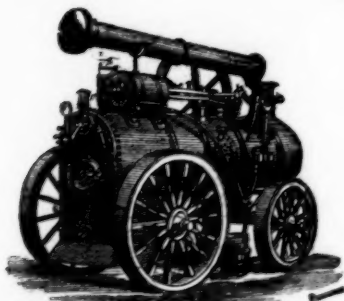
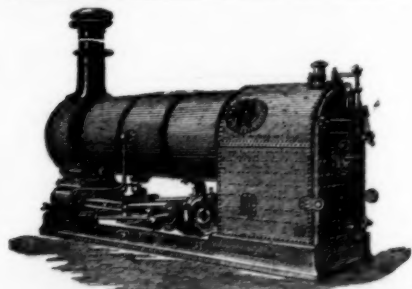
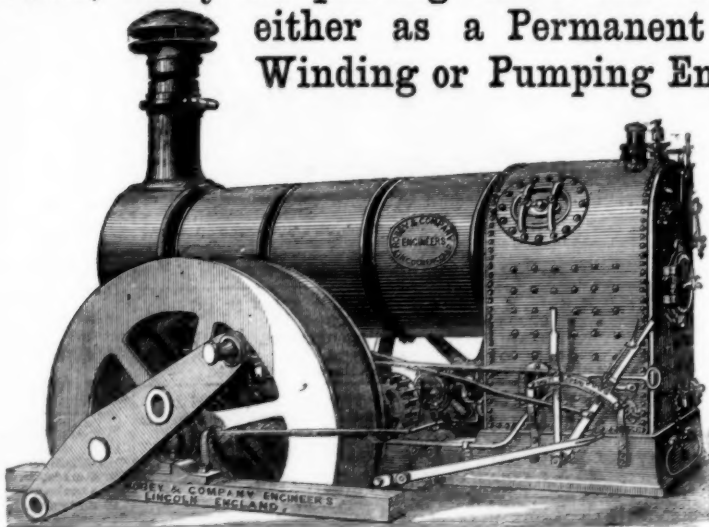
Glasgow: 68, ANDERSTON QUAY.

MANUFACTORY: GATESHEAD-ON-TYNE.



ROBEY & CO.

NOTICE TO COLLIERY PROPRIETORS, MINE OWNERS, &c.

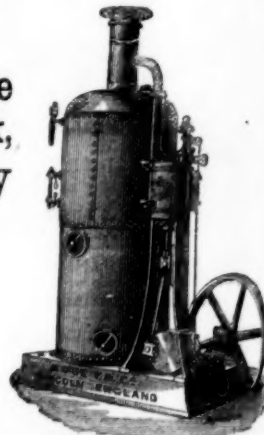
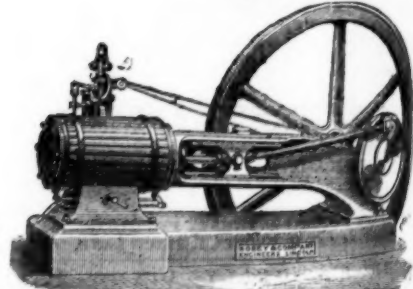
The PATENT "ROBEY" MINING ENGINE is complete
in itself, ready for putting down and setting to work,
either as a Permanent or Temporary
Winding or Pumping Engine.Robey's Superior Portable Engines,
2½ to 50-h.p.LONDON OFFICES:—
117, Cannon Street, E.C.The Improved Robey Fixed Engine and
Locomotive Boiler Combined, 4 to 65-h.p.,
and Compound Robey Semi-fixed Engine.

ALL SIZES KEPT IN STOCK FROM 4 TO 65-H.P. NOMINAL.

Please note this is the Original "ROBEY" Engine as designed
and manufactured by Messrs. ROBEY and Co., of Lincoln. All
others are mere attempts at imitation.

For particulars and prices apply to the Patentees and Sole Manufacturers—

ROBEY AND CO., GLOBE WORKS, LINCOLN, ENGLAND.

Robey's Vertical Stationary Engine,
1½ to 16-h.p.Robey's Horizontal Fixed Engines,
4 to 60-h.p.

TO OWNERS OF LOCOMOTIVES.

HOWELL'S COPPER COATED STEEL TUBES

For Locomotive and other Boilers, are the Best Protection against the Combined
Action of the Destructive Properties of Fire and Water.

HOWELL & Co., Sheffield Tube Works, SHEFFIELD

LE MOUVEMENT INDUSTRIEL BELGE: REVUE
TECHNIQUE, COMMERCIALE ET INDUSTRIELLE, sous la direction
de M. l'Ingénieur P. DESGUIN. Paraît le Vendredi de chaque semaine.
Il contient des articles d'actualité sur l'Agriculture, la Navigation, les Mines,
la Construction, les Machines, les Chemins-de-fer, les Canaux, les Trains
Publics, le Droit Industriel et Commercial, les Inventions, et les Perfectionne-
ments, et principalement surL'EXPOSITION INTERNATIONALE D'ANVERS
dont il publie les plans, les dessins et documents de tous genres.
TEXTE ILLUSTRÉ DE BELLES GRAVURES.
Abonnements annuels:—Belgique, 25 francs; Union postale, 30 francs.
S'adresser à l'Administration, Rue des Croisades 32, à Bruxelles.THE IRON AND COAL TRADES REVIEW.
The IRON AND COAL TRADES REVIEW is extensively circulated amongst the
Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron
and coal districts. It is, therefore, one of the leading organs for advertising
every description of Iron Manufactures, Machinery, New Inventions, and all
matters relating to the Iron Coal, Hardware, Engineering, and Metal Trades
in general.Offices of the Review: 342, Strand, W.C.
Remittances payable to W. T. Pringle.

R. HUDSON'S Patent Steel Trucks, Points and Crossings, PORTABLE RAILWAY, STEEL BUCKETS, &C., &C. GILDERSOME FOUNDRY, NEAR LEEDS.

Patented in Europe, America, Australia, India, and British South Africa, 1875, 1877, 1878, 1881, and 1883.

N.B.—The American, Indian, Australian, and Spanish Patents on Sale.

23.—PATENT TRIPLE CENTRE SIDE TIP TRUCK.

Registered
Telegraphic Address:
"GILDERSOME,
LEEDS."
A. B. C. Code used.

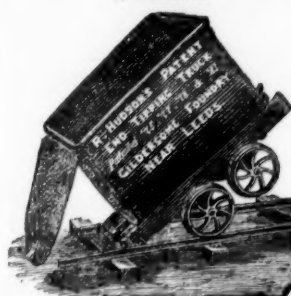
(Near Gildersome Station, G.N.R.,
Main Line, Bradford to Wakefield
and London, via Lalsleydyke and
Ardley Junctions.)

TELEPHONE No. 14, LEEDS
EXCHANGES.

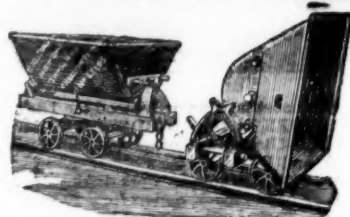
17.—SELF-CONTAINED TURNTABLE,
Requiring no Foundations.



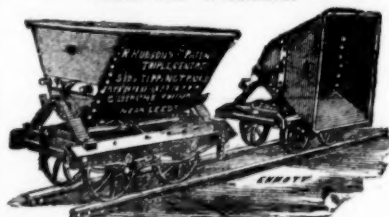
1.—PATENT STEEL END TIP
WAGONS.



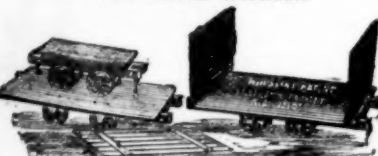
2. PATENT UNIVERSAL TRIPLE-CENTRE
STEEL TIPPING TRUCK,
Will tip either SIDE or either END of rails.



3.—PATENT TRIPLE-CENTRE STEEL
SIDE TIP WAGONS.

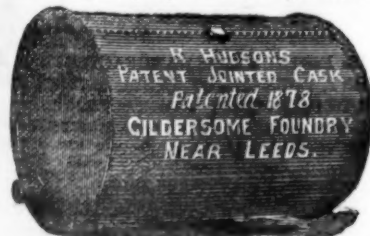


4.—PATENT STEEL PLATFORM OR
SUGAR CANE WAGON.



5.—PATENT STEEL CASK.

As supplied to H.M. War Office for the late war in Egypt).
DOUBLE the STRENGTH of ordinary Casks without any
INCREASE in weight.
(Made from 10 gals. capacity upwards to any desired size.)



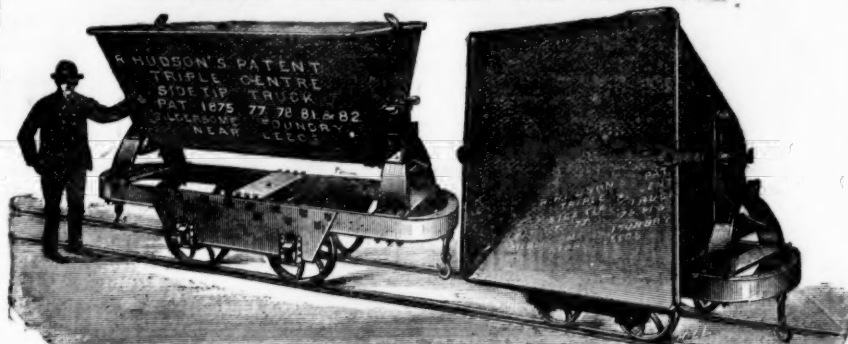
6.—ROBERT HUDSON'S

PATENT IMPROVED IRON SMITH'S HEARTH,
NO BRICKWORK REQUIRED.

A Special quality made almost entirely
of STEEL, effecting a GREAT SAVING
IN WEIGHT.



Large numbers in use by all the principal Engineers in this
country and abroad.

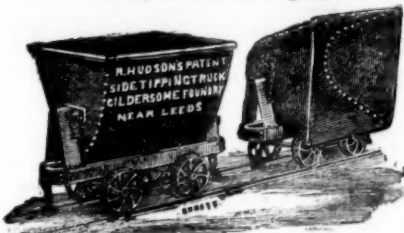


One man can tip any weight with ease.

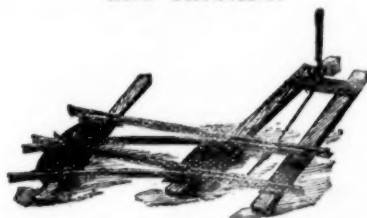
7.—PATENT STEEL MINING WAGONS.



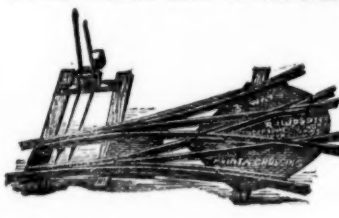
8.—PATENT DOUBLE-CENTRE STEEL
SIDE TIP WAGONS.
Will tip either side of Wagons.



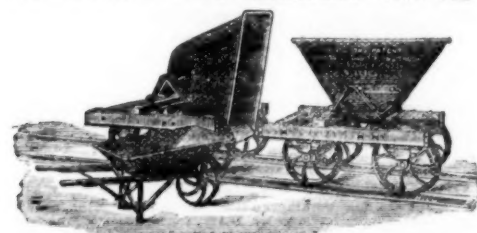
10.—LEFT-HAND STEEL POINT
AND CROSSING.



11.—RIGHT AND LEFT-HAND
STEEL POINT AND CROSSING.



24.—R. H.'s PATENT BALANCED END TIP



18.—"AERIAL" STEEL WINDING
TUB.

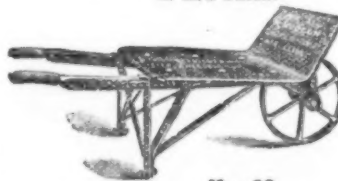


Largely employed in the South African
Diamond Fields.

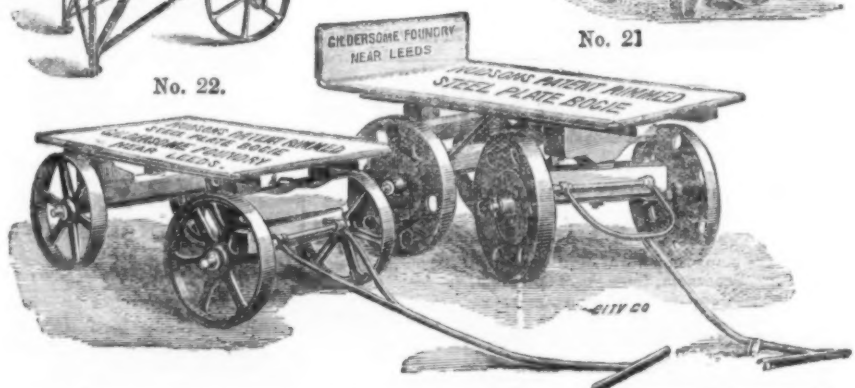
16.—PATENT STEEL WHEELBARROWS.
Made to any Size.
Lightest and Strongest in the Market.



25.—PIG-IRON BARROW,
R. H.'s Patent



No. 22.



19.—PATENT STEEL CHARGING
BARROW.
Double the strength and lighter than ordinary
Barrows.



No. 21

Upwards of 25,000 of these Trucks and
Wagons have been supplied to the South
African Diamond Mines; American,
Spanish, Indian, and Welsh Gold, Silver,
Copper, and Lead Mines; Indian and
Brazilian Railways, and to Railway Con-
tractors, Chemical Works, Brick Works,
and Coal and Mineral Shippers, &c., &c.,
and can be made to lift off the underwork,
to let down into the hold of a vessel, and
easily replaced. They are also largely used
in the Coal and other Mines in this country,
and are the **LIGHTEST, STRONGEST,**
and most **CAPACIOUS** made, infinitely
stronger and lighter than wooden ones,
and are all fitted with R. H.'s Patent
"Klm" round top of wagons, requiring no
rivets, and giving immense strength and
rigidity. End and body plates are also
joined on R. H.'s patent method, dispens-
ing with angle-irons or corner plates.

CAN BE MADE TO
ANY SIZE,
AND TO ANY
GAUGE OF
RAILS.

15.—R. HUDSON'S
Patent Steel Cage
and "Fallers," &c.,
complete.



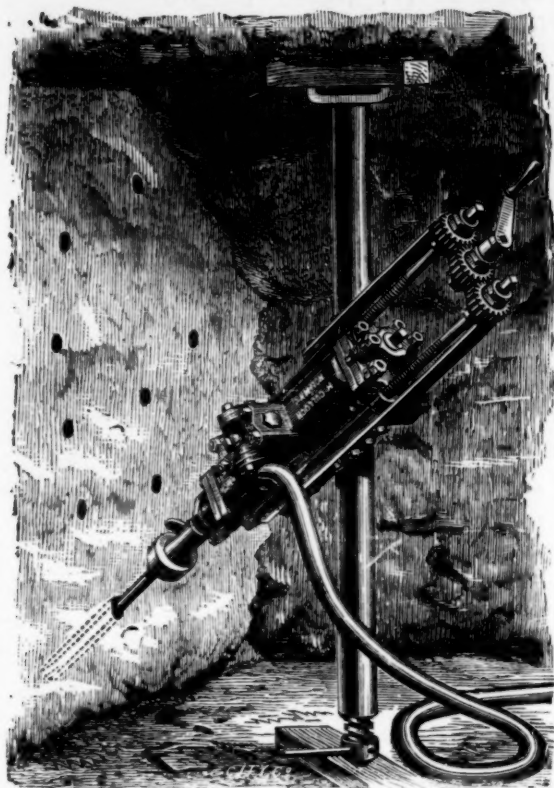
ALL KINDS OF BOLTS, NUTS, AND RIVETS MADE TO ORDER ON THE PREMISES.

This Drill may be seen at work any hour from 10 A.M. to 6 P.M. at the International Inventions Exhibition, Stand No. 194, North Court, South Galleries.

FIRST SILVER MEDAL, ROYAL CORNWALL POLYTECHNIC—Highest Award for Effectiveness in Boring, and Economy in the Consumption of Air.

JUBILEE EXHIBITION, 1882.
THE PATENT

"CORNISH" ROCK DRILL.



FIRST SILVER MEDAL AWARDED AT BORING COMPETITION, DOLCOATH MINE, 1881.

The "CORNISH" ROCK DRILL and "CORNISH" COMPRESSOR

Are now largely in use, and in every case are giving entire satisfaction.

For Testimonials, Illustrated Catalogues and prices, apply to—

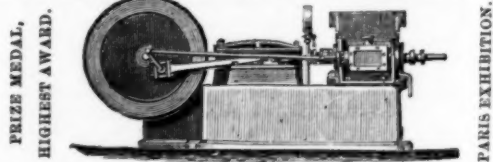
HOLMAN BROTHERS,
CAMBORNE FOUNDRY,

MAKERS OF
MICHELL & TREGONING'S PATENT PULVERISER, and HOLMAN'S IMPROVED STEAM or AIR PUMPING and WINDING ENGINE for Underground Quarries or Shallow Mining. Indispensable for Shaft Sinking with Rock Drills. Also makers of all kinds of MINING MACHINERY at

THE CAMBORNE FOUNDRY AND ENGINE WORKS,
CAMBORNE, CORNWALL.

THE PATENT "ECLIPSE" ROCK-DRILL AND "RELIANCE" AIR-COMPRESSOR.

First Silver Medal awarded at Boring Competition, East Pool Mine, Sept. 1883.



ARE NOW SUPPLIED TO THE
ENGLISH, FOREIGN, AND COLONIAL GOVERNMENTS

And are also in use in a number of the
LARGEST MINES, RAILWAYS, QUARRIES, AND HARBOUR
WORKS IN GREAT BRITAIN AND ABROAD.

FOR ILLUSTRATED CATALOGUE AND PRICES, apply to—

HATHORN & CO., 22, Charing Cross, London, S.W.

HAYWARD TYLER & Co. LONDON.

MAKERS OF

STEAM PUMPS.

10 PRIZE MEDALS.

MINING MACHINERY,

SPECIALITY

FOR CRUSHING AND AMALGAMATING

GOLD and SILVER ORES

As supplied to many important and successful Mines in Brazil, Venezuela, India, U.S. Colombia, &c.

Best—SHOES and DIES—Cheapest.

SANDYCROFT FOUNDRY CO. (LIMITED),
NEAR CHESTER.

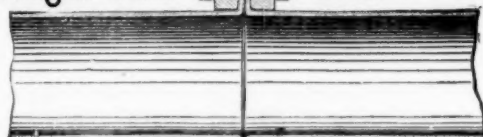
PATENT IMPROVED "INGERSOLL ROCK DRILL." MEDALS AND HIGHEST AWARDS SEVEN YEARS IN SUCCESSION, FOUR IN ONE YEAR.

American Institute, 1872.
American Institute, 1873.
London International Exhibition, 1874.
Manchester Scientific Society, 1875.
Leeds Exhibition, 1875.
Royal Cornwall Polytechnic, 1875.
Rio de Janeiro Exhibition, 1875.
Australia Brisbane Exhibition, 1876.
Philadelphia Exhibition, 1876.
Royal Cornwall Polytechnic, 1877.
Mining Institute of Cornwall, 1877.
Paris Exhibition, 1878.

AWARDED FOR
SIMPLICITY in CONSTRUCTION.
AUTOMATIC FEED
(Perfect success)
GREAT STEADINESS.
GREAT POWER.
GREAT DURABILITY.
GREAT EFFECTIVENESS.



Wrought-Iron Steam Tubes.



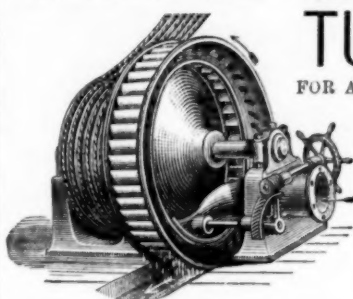
IMPROVED PATENT ROTARY

Helico-Pneumatic Stamping Mills.

Estimates given for Air Compressors and all kinds of Mining Machinery. For Illustrated Catalogues, Price Lists, Testimonials, &c., send to—

LE GROS, MAYNE, LEAVER & CO.
60, Queen Victoria Street, London, E.C.

W. GÜNTHER, CENTRAL WORKS, OLDHAM.



TURBINES

FOR ANY FALL OR POWER
AND VARIABLE
WATER SUPPLY.
Special Turbines for
ELECTRIC
LIGHTING AND
MINING.

Fans, Mine Ventilators,
Centrifugal Pumps.

GIRARD TURBINE FOR HIGH FALLS (Cover Removed.)

Prices, &c. on Application.

For Excellence and Practical Success of Engines. Represented by Model exhibited by this Firm.

HARVEY AND CO.,
(LIMITED)

ENGINEERS AND GENERAL MERCHANTS,
HAYLE, CORNWALL.

LONDON OFFICE—186, GRESHAM HOUSE, E.C.

MANUFACTURERS OF
PUMPING and other LAND ENGINES and MARINE STEAM ENGINES
of the largest and most approved kinds in use, SUGAR MACHINERY,
MILLWORK, MINING MACHINERY, and MACHINERY IN GENERAL.
SHIPBUILDERS IN WOOD AND IRON

MANUFACTURERS OF
HUSBAND'S OSCILLATING STAMPS.

These Stamps are now working on the "Owen Vean" Mine, near Marazion, and may be seen on application to Mr. Derry, the manager. Four heads stamp from 20 to 30 tons of tin stone, ordinary hardness, in 24 hours. The consumption of fuel is much less per ton of stone stamped than by the old system, and the wear and tear also much less. See Mr. Derry's paper (extract of which appeared in the Mining Journal of Nov. 1st, 1884) on these stamps read before the Mining Institute of Cornwall.

SECOND-HAND MINING MACHINERY FOR SALE,
IN GOOD CONDITION, AT MODERATE PRICES—viz.,
PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES,
STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK of
various sizes and descriptions; and all kinds of MATERIALS required for
MINING PURPOSES.

Tunnelling. Excavation. Blasting.

WORK OF THE ABOVE DESCRIPTION UNDERTAKEN
BY CONTRACT IN ANY PART OF THE WORLD.

ENGINES, AIR COMPRESSORS,
ROCK DRILLS,
And every Description of Rock Boring and Excavating
Plant supplied on Hire or Purchase.

BEST TERMS FOR EXPLOSIVES—MUCH SAFER AND
MORE POWERFUL THAN DYNAMITE.

Pick and Shovel distanced as regards time and cost by our
Patent System of applying Explosives and Machinery to
the Excavation of Earth, Clay, Sand, Gravel, Soft Rock, &c.

BYRNE & Co.,
ENGINEERS AND CONTRACTORS,
12, Buckingham St., Strand, London, W.C.

CALIFORNIAN AND EUROPEAN AGENCY.
609, MONTGOMERY STREET, SAN FRANCISCO CAL.
J. JACKSON, Manager.

MINING MACHINERY, INVENTIONS EXHIBITION.

STAND 141. NORTH COURT.

T. B. JORDAN, SON, & COMMANS,

ADELAIDE CHAMBERS, ADELAIDE WORKS,
52, GRACECHURCH ST., E.C. | STRATFORD and WIGAN.

THE "Barrow" Rock Drill

HOSKING AND BLACKWELL'S PATENT.



SUPPLY their CELEBRATED ROCK DRILLS, AIR COMPRESSORS, &c., and
all NECESSARY APPLIANCES for working the said Drills.

Their DRILLS have most satisfactorily stood the TEST of LONG
and CONTINUOUS WORK in the HARDEST KNOWN ROCK in
numerous mines in Great Britain and other countries clearly proving
their DURABILITY and POWER.

Hundreds of these Drills are now at work driving from three to
six times the speed of hand labour, and at from 20 to 30 per cent.
less cost per fathom. They can be worked by any miner.

Awarded Silver Medal, International Inventions Exhibition,
London, 1885.

For PRICES, Particulars and Reports of Successful and Economical
Working, apply to—

LOAM AND SON,
LISKEARD, CORNWALL.

PERFORATED SHEET METALS

FOR
TIN, LEAD, AND COPPER MINES,

MILLERS BREWERS, AND

MALSTERS,

COLLIERIES, AND

QUARRIES,

COFFEE ROASTERS,

AND

SUGAR REFINERS.

ALDRED & CO.,

WORKS: PARKER STREET, ASHLEY LANE,
MANCHESTER.

W. F. STANLEY

MATHEMATICAL INSTRUMENT MANUFACTURER TO H.M.S.
GOVERNMENT, COUNCIL OF INDIA, SCIENCE AND
ART DEPARTMENT, ADMIRALTY, &c.

MATHEMATICAL, DRAWING, and SURVEYING INSTRUMENTS of every
description, of the highest quality and finish, at the most moderate prices.

Price List post free.

ENGINE DIVIDER TO THE TRADE.

ADDRESS: GREAT TURNSTILE, HOLBORN, LONDON, W.C.

SILVER MEDALS AWARDED AT CORNWALL
POLYTECHNIC, 1872 AND 1876.

THE WELL-KNOWN PATENT
SELF-ACTING ORE DRESSING
MACHINERY,

AS IN OPERATION at most of the LARGE MINES in the Kingdom
and Abroad, is now supplied solely by the PATENTEE and MANU-
FACTURER,

Mr. GEORGE GREEN, Mining Engineer,
AT GREATLY REDUCED PRICES.

All descriptions of MINING MACHINERY, including GOLD and
SILVER AMALGAMATING MACHINERY, complete. STAMP
MILLS, WATER WHEELS, STEAM ENGINES, &c.

SPECIAL DESIGNS FOR EXPORT AND DIFFICULT TRANSIT.

Prices and particulars on application to the Manufactory,—
ABERYSTWTH, SOUTH WALES.

OXONITE.

THE PATENT OXONITE EXPLOSIVE COMPANY, LIMITED.

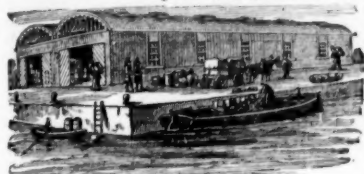
OFFICES:—12, BUCKINGHAM STREET, STRAND, LONDON, W.C.

This new and powerful Blasting Agent possesses the following advantages over Dynamite, Tonite, &c.:—It is absolutely safe to Handle, Store, and Carry. Careful practical trials have shown Oxonite to be 25 per cent. MORE POWERFUL than Dynamite, and that Oxonite can be used wherever Dynamite and Gun Cotton are employed. It can be also used in Guns and Torpedoes. It is not subject to the Congelation and Exudation which in the case of Dynamite have given rise to thousands of Fatal Accidents. It is perfectly safe to Store or Transport, being manufactured in two separate portions, NEITHER OF WHICH IS EXPLOSIVE IN ITSELF, and which can be mixed together by any unskilled labourer without danger or error, and may be shipped at Ordinary Rates, thus effecting a great Saving in freight.

OXONITE SAFETY DETONATORS (PATENTED).

These Detonators can be hammered on an anvil without danger, and yet will explode violently when ignited by the ordinary fuse. They may be also used in place of Dynamite, Cotton Powder, Tonite, Gunpowder, or any other Explosive.

GALVANISED IRON AND ZINC ROOFS AND BUILDINGS. FRANCIS MORTON AND CO., LIMITED.



GENERAL STORE FOR WHARF, &c.
Naylor St. Iron Works, Liverpool.

ESTABLISHED OVER THIRTY YEARS.
The system adopted by F. M. and Co. in the construction of their Galvanised Corrugated Iron and Zinc Buildings combines many advantages which no other form of building can offer. At a minimum cost they provide every required accommodation, while the construction secures great strength and durability, together with protection against fire. Illustrated Catalogues and Estimates sent on application, when Purchasers should supply full particulars of requirements.
WROUGHT IRON ROOF PRINCIPALS, GIRDERS, AND GENERAL WROUGHT IRON WORK.



OPEN SHED FOR COVERING LARGE AREAS.
London Office: 9, Victoria Chambers, Victoria St., Westminster, S.W.

ROYAL MINING ACADEMY AT CLAUSTHAL (GERMANY).

74TH SCHOLASTIC YEAR, 1885—1886.

THE LECTURES FOR THE WINTER HALF WILL COMMENCE ON THE 8TH OF OCTOBER, 1885.

Programmes to be had (gratis) of

THE DIRECTOR,

BERGRATH DR. V. GRODDECK.

QUICKSILVER-WAVE AMALGAMATOR.

A PURELY MECHANICAL AND AUTOMATIC PROCESS treating Gold Ores direct from the Stamps or Pulverisers, and superseding the use of Copper Plates, Blankets, &c.

One Amalgamator will treat 10 tons per 24 hours; size, with frame, 9 ft. x 3½ ft.; weight, under 15 cwt.; power, only ½ H.P. necessary; quicksilver required, 120 lbs. only. Cost of treatment, 3d. to 1s. per ton of ore.

Price of Amalgamator (ready for immediate use), £100 f.o.b., a further sum of £150 at end of six months—i.e., after approval—or £100 then and a further £100 twelve months thereafter. (On royalty if preferred.)

Amalgamators have been in practical use for upwards of one year. They save 85 to 95 per cent. of gold, free, or with sulphurets (using Frue Vanners or other concentrators for all ores with sulphurets).

QUICKSILVER-WAVE AMALGAMATOR CO. LIMITED

Offices and Works: 17, Wharf-road, City-road, E.C.

N.B.—This process has the highest percentage of saving; and, moreover, is the cheapest and most rapid.

THE MASON COLLEGE, BIRMINGHAM.

SESSION 1885-86.

MINING DEPARTMENT.

Professor W. E. BENTON, Assoc. R.S.M., F.G.S.

THE SESSION COMMENCES ON THURSDAY, OCTOBER 1st.

Syllabuses, containing full information as to the Admission of Students, Fees, Entrance and other Scholarships, &c., may be had from Messrs. CORNISH, New-street, Birmingham. Price 3d.; by post 4½d.

GEO. H. MORLEY, Secretary.

IMPORTANT TO MINE OWNERS.

ROCK DRILLS and AIR COMPRESSORS.—Several on hand at low prices.

WARSOP AND HILL, ENGINEERS, NOTTINGHAM.

Original Correspondence.

DREDGING GOLD COAST RIVERS.

SIR.—Referring to your last issue, Mr. D. W. Lowman's letter re dredging the Gold Coast rivers, I beg to say I have given great attention to this matter, and have constructed several light dredgers which can be fixed to any light boat, punt, or even a float made of timbers, which are working successfully.

If the subject is of sufficient interest I should be glad to send you drawings of these and of my automatic dredger, which works entirely by the operation of the tide, or force of the stream, and is kept going night and day without any cost for power where the rivers are suitable. In the event of your taking the matter up some of the drawings would require to be cut in line blocks; but I think the matter of a cheap apparatus for dredging rivers and streams containing tin and gold has not been attempted on the lines upon which I work.

Standard Ironworks, Washford-road, Sheffield, August 31.

CHARLES E. HALL.

GOLD AMALGAMATION, AND GOLD PRODUCTION.

SIR.—In my last letter I referred to gold as found under two conditions, clean or "free," and as covered with an oxide or sulphide of iron or copper, or dirt that envelopes each particle, and so prevents its amalgamation with quicksilver. In the first state there is no obstacle to its union with quicksilver; in fact, the difficulty would be to prevent that union if they were brought in contact. In the second state, I named four plans for rendering it capable of amalgamation—chemistry, rubbing, grinding, and attrition. I showed that the first was too expensive except for rich ores; that the second and third were, at best, but partial in their results; and that by attrition effects could be produced that in completeness and expense were far preferable to the others. But gold is found in other conditions than those stated—in chemical combination with minerals or metals that have not only no affinity for quicksilver, but are antagonistic to its action. To refer for a moment to the much-used "amalgamating copper plates," as they are called, whether they are silvered over or not, their action, at best, is but a "lazy one, a kind of hit or miss," being entirely devoid of any intelligent action, mechanical skill, or scientific guidance. I notice in a recent report from the Oscar Mine (I think), that a certain quantity of gold was kept back to "dress the amalgamating plates," so that gold was required to aid in getting gold. It is easy to see from this, that when the surfaces of the plates are rough, it is more easy to arrest the gold in its progress over them than when they are smooth. This, to my mind, points to a difficulty as to the water supply with the crushed ore. When the plates are clean and newly prepared, less water is necessary to carry the pulp over them than when they are rough, by having arrested gold from the pulp, and it must be a very difficult task to regulate this. In the working of my Quicksilver-Wave Amalgamator, at Conrad Hill, North Carolina, in September, 1883, I found that even, when the plates were in their best condition, a very large proportion of gold passed the plates without amalgamation. The exact quantity was 2½ ozs. when 4 ozs. had been caught by the plates, and when the plates had been removed the machine caught the 6½ ozs.; thus showing that the attrition in the Amalgamator was all that was necessary to render the gold free for amalgamation.

But gold is found in combination with other metals and minerals, which prevent its union with quicksilver. Under these circumstances three questions arise. Can it be got out; how can it be got out, and can it be got out profitably? The last question determines the other two, for if it cannot, the French proverb will apply, that "the game

is not worth the candle." When thus mixed with other minerals or metals the gold is always exceedingly fine—in fact, like flour, and whatever is in connection or combination with it, must be reduced to the same degree of fineness before it is possible to secure the gold by any process. It then is fit for a concentrator, where, by the difference of its specific gravity it can be separated from the crushed ore, and then treated either chemically or in the furnace. To render either of these processes successful, the separation must be as complete as possible, so as not to have to treat any in bulk but what will pay for such treatment. There are, however, very few mines that will yield a profit when the gold is found only in this state.

I always regret when I see amateurs and non-practical men devoting their time and money to the subject of amalgamation, as if by inspiration or accident they could overcome difficulties that have never yet been solved—viz., by a machine that will save all the gold from every mine, no matter with what it may be in combination, and whether it will pay to do so or not. No doubt there is advantage in fresh minds being brought to bear on any subject; but in this particular one, I doubt if any arrangements of a practical kind will ever result from the efforts of those who have not had experience in the work. I remember an instance of this at the Conrad Hill Mine, N. C., at the time I took my amalgamator to those mines. A newly patented amalgamator had been fixed there, and discarded after the first trial. It was a complicated machine that required an 8-in. belt to drive it. No less than 600 lbs of quicksilver was required to charge it. The pulp was to pass through quicksilver in consequence of the action of arms on an upright shaft. The whole was heated by steam, the result of such heating being that the quicksilver was distributed in most minute particles all through the pulp, from which it was impossible to recover it. It moreover required the services of a skilled mechanic for a whole day to clean it out. I merely name this as an instance of misdirected efforts by one who was totally ignorant of the first principles of amalgamation, as well as of mechanical movements. The least knowledge of quicksilver would have prevented the use of steam with it, except the thermometer had been below zero.

HENRY MOON,

Inventor and Patentee of the Quicksilver-Wave Amalgamator.

St. Paul's-road, N., August 26.

THE ST. AGNES DISTRICT.

SIR.—Availing myself of recent fine weather I have had a trip to Cornwall, and being interested in, I may say, all the mines about St. Agnes, I stayed a few days there so that by personal investigation I might satisfy myself on a few points. Having done so, I pen this thinking it may interest a few who may not find time to go there, and who yet are interested in the tin mines of St. Agnes. Arriving at Chacewater Station and getting a wash and comfortable breakfast at the Lion, Blackwater, I had a delightful walk of about one hour to St. Agnes, and my first object of interest was Wheal Kitty. Here I found all in good working order, and a fair quantity of rich tin being returned. I should think from what I saw that at least costs are being paid, if not a profit. The meeting about due will give, I think, a good report. I next went to Blue Hills, which lays over the hill north-east of Wheal Kitty, at the bottom of a deep ravine, the stream running through which is employed for making the tin marketable, and I can only say that I am fully convinced from what I saw that the prospects of Blue Hills are such as to bear out the favourable remarks of the captain at the meeting that—"There is every appearance of opening out a good profitable property," and the fact of Penhalls set being now annexed to Blue Hills makes it very valuable. Up the ravines east side some 350 ft. high, and at about ½ mile on the level surface above is East Blue Hills, a mine just now causing a stir in the district. I had been

talking of this mine and its prospects to several during the day, and from what I could gather from working miners it is plain that practical men hold a good opinion of its prospects. With the permission of the captain I went underground, and may here remark that I found no need to change either my trousers or walking boots. The water in the mine is very slight indeed, and I should say the engine is ample to work the mine at least 50 fathoms deeper. The lode is a strong, well-defined large one, and the ore in sight is fully worth the moderate value placed on it, if I might judge by what I saw in other mines; and the opinion of both Captains Bennetts and Michell that I formed was that they are both good practical men, in whose hands the property is safe, while the riches of the mine are self-evident. After a wash, &c., I had pointed out to me the positions of the two adjacent mines to north and east—North Blue Hills and Prince Royal, both so situated that no doubt seems to be held as to their ultimate success at an early date. I then made my way back to the Commercial Hotel, where I met with every comfort, and tried to get hold of a few East Blue Hills at the prices quoted in the papers, but failed to do so. I may say afterwards at Truro and Redruth I picked up a few a little over quoted prices, but for delivery at one and two months' time. This point is worth taking note of. Next day my first object of interest was West Kitty, situated on the top of the hill on which St. Agnes town is built, and separated from the hill on which stands Wheal Kitty by a deep ravine, some 300 ft. deep. Some rich work was being drawn at the time, and its appearance at once explained the fact of returns being made at one-half profit. I selected easily some of the richest stones of tin I ever saw.

Without doubt this is one of the richest mines in the county, and it seems a pity that the present controversy should have come about. To me it seems strange that both parties, alike all honourable business men, should so far forget what is due to the district. I fully believe no ill was meant by the remark first made, as it only repeated a plain fact, which everyone who read Captain Vivian's reports must have known. The complications of argument since perpetrated could have been avoided by a friendly explanation. I agree that the truth was told in the first instance, but only the naked truth. Did the other parties accept the fact, and explain the truth by letting all know that while at the 80 fathom the mine of the present set is bottomed for that lode, yet between the 72 and 80 fathom levels owing to the flatness of the lode there are, in fact, 56 fathoms of backs, not the few fathoms spoken of. Besides this there are some 15 fms. further to explore, and may be the lode may alter its underlay again in it. Now, taking the shares at market price, and that the present rich work continues, even in present boundary the holder will not only get his capital returned, but 10 or 15 per cent. on his money; besides, the sett can be extended, and the present so-called 84 fathom (but really, counting from the 72, 128 fathom level) sunk, or rather driven deeper. From what I could gather full confidence is felt in the district about the mine, and the recent fall came about more from the large sale of shares than from the fear of the mine giving in. I next went to Trevaunance. This is a wonderful district, and the vast debris shows that work of no little moment has been done above adit; in fact, the set seems as if turned over by an earthquake. I went down and explored some miles, I may say, of levels made by the old men, and the ramification showed that they must have been successful; in fact, the whole country rock, not only the lode, is and has been alive with tin more or less valuable. I as a shareholder was much pleased with the work done, and the appearance of the copper lode in the 55 east. From its look west I should think a change to tin not unlikely. I may remark that in the district the lode is and has been worked on as a tin not a copper lode. No doubt the rich copper will be followed by tin before long. The engine and engine-house are everything to be

desired, and I feel that ere long we shall be rewarded for our patience.

Polberro I had not much time to examine, but seeing how it is situated it cannot fail to produce good fruit in due time. New Kitty also I feel ere long will answer the helm, and having machinery already can at once become a returner of tin if not dividends. At West Polberro good work is now being done, and after the engine is fixed, and other matters made complete, no doubt it will also be another prize at St. Agnes; in fact, the whole place seems a great mass of mineral veins and deposits. Leaving St. Agnes I reached the Redruth district, and Pedn-an-drea is no doubt the coming mine in this district. From what I could gather the mine is worked in a minerlike manner coupled with the same sound financial spirit that, with the exception of Wheal Kitty, every mine at St. Agnes is conducted—that is, "Cost-book and No Credit." At Pedn-an-drea the plant and machinery is extensive, and equally as well planned as at West Kitty, every modern improvement being there, the magnificent 72-in. engine being a specimen of work, while the 32-in. is equally as good in its way. The stamps engine and stone-breaker seem to do their work well, and, above all, the lodes underground are all that could be wished for short of being fully developed. The plant, &c., on the mine must have cost 25,000l., and yet the shares are neglected for more publicly known mines of not one-tenth the value of Pedn-an-drea. I also went over the floors, &c., of Killifreth, and no doubt this mine, if not so bunched, would become a favourite. The plant, burning-house, &c., are in good condition, and no doubt the mine will again and again benefit the man who speculates. I fear would speak of a few others, but have already trespassed too long. I only wonder why shareholders do not go down and see for themselves their mines, and the beautiful scenery of Cornwall and Devon.

J. B.

CORNWALL MINERS' ASSOCIATION AND INSTITUTE.

SIR,—You are aware that the Cornwall Miners' Association and the Cornwall Mining Institute no longer exist as distinct societies. They were amalgamated a few months ago, and very properly so. There were too many societies in the county.

The annual excursion of the society took place yesterday, September 1st, when the members met at Lostwithiel railway-station, and proceeded thence by five carriages to Restormel Castle, which was built about 600 years ago, but is falling into decay; and no attention is given to preserve it. Being, however, substantially built, its existence will extend into the distant future. Mr. R. H. Williams, C.E., favoured the company with a brief history of this relic of antiquity. It is covered with ivy, and surrounded by a moat, which has been lately cleared of underwood. The castle stands at a considerable elevation above the River Povey, which flows at the base of the hill on which it is situated; but there is a considerable further rise westward of the castle—probably 150 ft. more—which affords a very extensive and picturesque view of the country around. The site of the castle is an admirable site for a mansion. Restormel is a large estate, the property of the Duke of Cornwall; but it is said that the late Lord Robartes purchased a lease of it, whether for lives or for a certain term I never heard. In walking up the hill from the castle to meet our carriages on the top, we passed several deep and extensive excavations made by the late workers of Restormel Iron Mine. The works were carried on here in very remote times; Messrs. Taylor and Co. had them for a long time, and since they abandoned them another company worked at a loss. No profit can be made of Cornish iron ore at the present price of the metal. The tramway in the adit and to the wharf at Lostwithiel still exists *in situ*. The adit is nearly a mile in length. The Queen went through it in 1846, when she visited numerous places in Cornwall—viz., Povey, Truro, and St. Michael's Mount, also Botallack Mine, into which she descended.

The road from Restormel Castle to the next place of inspection—viz., Mulberry Mine—is very hilly and indirect. Mulberry is not strictly speaking a mine, but an open working—a great quarry—which has been in operation as a tin work for a long period. It is the largest excavation in Cornwall except Delabole Slate Quarry. Its depth is about 20 fathoms. There are two adits into it—one at 10 fathoms depth, through which the tinstone is conducted over a tramway to the stamping mills, one worked by water and the other by steam power. The stamping power consists of 130 heads, all of which in the winter months are lifted by water-wheels, one of 50 ft. diameter, and others. The 50-ft. wheel and the steam-stamps are near the outlet of the 10 fm. adit. The 20 fm. adit discharges the tinstone near water-wheels in the valley. Capt. David Cook, about the year 1881 paid 13,000l. for this tin work, which at the then price of tin was considered reasonable; but, unfortunately for Capt. Cook, the price of tin went down to so low a figure that no profit could be made on the working, but a loss if steam-power were used in the reduction of the stone. At the present price of tin a small profit can be made by water-power stamping. The quarry is in the slate formation, and the tin is contained in the interstices of the rock in the proportion of about 6 lbs. to the ton, to obtain which the whole mass must be subjected to pulverisation. There is no lode, but it seems that some portion of the rock is more productive than other portions. The quarry is entirely unfenced; a fall into it would be certain death.

From this place we wended our way to Bodmin. In passing the asylum, some one remarked that he thought it a very fit place for some people connected with mines; and that the prison, not far off, would be another fit place for other mining people. Of course, these were jokes. We did not stop in Bodmin more than two minutes. We arrived at Lanhedock about a quarter to two o'clock—15 minutes later than the appointed time.

The Right Hon. Lord Robartes, the President of the United Society for the current year, had kindly invited its members to lunch with him at his seat yesterday. We were very politely received at the door by Lord and Lady Robartes, and their two little sons; and after the interval of about half-an-hour we were introduced to a room containing two long tables overspread with viands of all descriptions, of which, after grace was said by Mr. A. P. Vivian, we partook with a fair appetite. After the repast, we had the usual toasts, given by his lordship, which were duly honoured. Speeches were made by Mr. Vivian, Captain Teague, and Captain Josiah Thomas. Captain Teague spoke better than I ever heard him before. I cannot quote all that was said by those gentlemen. It was good.

Lanhedock House, which was partially destroyed by fire a few years ago, has been restored and enlarged. Over the door of the right wing, which was not affected by the fire, is the date "1632." Over the door in the other wing is the old stone bearing date "1644." The building is probably the most commodious of any in the county, and contains rooms of singularly large dimensions for a private residence. One room, the gallery, is 120 ft. long. It contains many portraits of his lordship's ancestors, and one containing the portraits of his lordship's four children—two boys and two girls—who looked very pretty. This painting, or drawing, is said to have been executed by a lady. It is not probable that an heir will be wanting for Lanhedock estates for generations to come.

There are several cases of books in the gallery, many of very ancient date, amongst them being the original text, in Latin, of the Domesday book. One would like to spend a day or two in looking into the rare works contained in those libraries. I observed that the ceiling of this room, which is circular and on the first floor, contained, in relief, some scripture illustrations. There was time only to have a glance at the manifold subjects and objects presented as we passed in review through the building, so that it would be useless to attempt any general description of them.

I was informed that the restoration of the edifice, and refurnishing it, cost about 100,000l.; but such an outlay, to a man of his lordship's means, was not felt, because he had an enormous sum receivable "on demand," and has an income from land of about 50,000l. per annum. You may remember that the fright occasioned by the destruction of the building caused the death of the late Lady Robartes, and her husband died about 12 months afterwards. The last time I saw the good man was at Truro station. The secretary of this useful Association, Mr. William Rich, jun., deserves

great credit for the perfect arrangements he made for this excursion, in which all the members had great pleasure, which, I hope, will be repeated in 1886.—*Truro, September 2.*

R. SYMONS.

MINING AT WILD RIVER, NORTH QUEENSLAND.

SIR,—There is a decided improved activity in the mining industry since my last letter, which very probably owes its cause to the rise in the quotations of tin. Several abandoned claims have been taken up, and tin got in all of them, which circumstance bears out former assertions that depth, which means capital, is all that is necessary to make this one of the premier tin fields known. It is now only about five years since the first settler came here, and although a rush soon followed there were very few who knew much about tin until after the first six months, and even then the number was very limited, yet the quantity of tin sent away the first 12 months was something enormous. To-day the mining extends over an area of very many miles, and, taking the district generally, the tin percentage equals on the average anything known. As a tin-producing area the capital introduced by one or two companies has not been large in ratio with the outputs, but capital in the shape of labour was extensive to have produced the quantity of ore. But this labour commenced at the surface, and it was only when the working mineowner got down to a depth that he discovered that he was compelled to abandon his claim because he had no coin, and his labour was insufficient for the purpose. The principal tin mine, the Great Northern placer claim, owned originally by four persons, has paid its way from the start, continually giving fair dividends, and the first outlay that has been made is for hauling machinery, now on the road. One of the shafts is down 220 ft., and there is sufficient stone raised from this claim to keep a machine constantly crushing. There are several other claims contiguous to it all looking to become equally good properties. The several mining (tin) centres are—Herberton, Watsonville, Coolgana, Enmu, and Thompson creeks, Eureka creek, Irvinebank, where there is a smelting furnace, and five or six other localities branching off from that place. It is asserted with much truth that at no acknowledged tin field have the drawbacks and difficulties been so great as have been experienced here in the shape of carriage and high wages. Yet it is daily advancing in greatness and importance, and by the time the railway will reach here be the resort of a large mining population.

But our silver resources are becoming daily more developed. The already famous Albion claim maintains its speedily earned reputation, as also its companions, the Barossa and others, belonging to Messrs. J. Moffat and Co., who are about to erect smelting works. Several new silver properties are now being worked; one of these has assayed from 90 to 1440 ozs. silver to the ton. Silver ore is being traced in different parts, and workings being tried. At the original silver country (Newellton), where there is also a smelter, a company is expected to work shortly on a large scale, and other claims at the same locality are also being worked. As I wrote elsewhere the capital utilised in tin and silver is exceedingly limited as compared to what I read in your Journal as being expended on similar mines. If the tin and silver results are carried on successfully here with limited means, what would this portion of North Queensland be if a fraction of your unlimited capital were ventured here. With English capital in our mines, or on tin alluvial leads, there would be room enough for your surplus miners to be comfortably located. There will be shortly inducements to effect this. The contemplated railway will come from the Port of Cairns, and into this port the British India Company's steamers will be berthed regularly, so that tin or silver will be easily transmitted to England at a minimum cost. British mining managers will have no difficulty in making visiting trips, and I can assure you that when any of these do come they will find as fine mining properties here as in Mexico, or any other part of the world, and become acquainted with a jolly lot of miners who only know English law.

A School of Mines will probably be established this week. Preparations are progressing to be well represented at the Colonial and India Expedition next year.

EDWARD MYERS.

Herberton Advertiser Office, Wild River, June 28.

THE VICTORIA GOLD MINE.

SIR,—In your issue of the *Mining Journal* of the 15th inst. I read letters from several gentlemen bearing on the present and future prospects of the Victoria Gold Mine, Venezuela. I beg to state that I visited this mine the latter part of December, 1883 (just the time I left the El Callao Company's employ), in company with Vice-Admiral Powell, one of the directors of the company, by whose request I inspected and reported on this property, and asked the favour at the outset of my remarks, to be allowed to congratulate the shareholders on their property, and to state that I did not consider this a speculation in the ordinary sense of mining terms, but a bona fide investment if in the hands of a practical and energetic manager, having a thorough knowledge of gold mining in all its branches.

There is an enormous quantity of quartz, which is estimated to be over 100,000 tons, from the outcrop of the east and west lode, a large quantity of which has fallen from the back of the lode, and has gravitated towards the bottom of the Quebrada, a large portion of which shows free gold. I have picked up pieces that would assay from 2 to 5 ozs. per ton, and I have one piece in my possession that would assay 30 ozs. to the ton. This mass of quartz awaits transit down an easy incline by tramway to a mill site well adapted by Nature for that purpose, at which place there is plenty of water for milling and amalgamation, and ample wood for steam and mining purposes within half a mile for the next 20 years. This property only waits an outlay of sufficient capital to erect a 40-head stamping-mill, with a 50-horse power steam-engine, tramways, &c., and the intersecting the east and west lode at the present adit, a distance of 130 ft. under the large outcrop referred to, to ensure a dividend-paying mine for years after the first 12 months. I consider 30,000l. working capital ample for all purposes mentioned, and of this amount a sufficient sum would then remain to carry on the mine in a legitimate manner. There are other lodes on the property, with occasional stones showing free gold of almost equal importance with the one named, one of which runs north and south and intersects the east and west lode just at the large outcrop before mentioned.

JAMES PENBERTHY.

East View House, Lelant, Cornwall, August 31.

SUSPENDED MINES.

SIR,—There are some mines so utterly worthless that they never ought to have been opened, and there are others having real intrinsic merit which never ought to have been given up. As an ordinary rule, and in ordinary times the good stand their ground, and the bad go soon to the wall. But these are not ordinary times. The depression existing in mining is greater than known within the memory of any living person. For many years I have contributed to the *Mining Journal* early in each year a list and statistical accounts of the dividend metalliferous mines of the year preceding. This year I omitted to do so, as the British dividend mines of the year, 1884, could hardly be made into a list. They might all be counted on the finger tips. "The darkest day will pass away," and "the longest lane has an end," are old sayings founded on wisdom and experience, and I believe mining is sure to improve. The oldest industry of this country is not going to collapse. In a few years, or perhaps in a few months it will emerge like the Phoenix alive from the embers, purified, brighter, and as vigorous as ever. It is, however, very grievous to see, month after month, good mines suspending, and the proprietors closing their affairs, not worthless concerns, but mines that have stood on their own merits for years, and would, in all probability, have turned the corner for the progressive to the dividend state, but for the present depression. There are many mines that have suspended of late whose history would be worth recording, and it would be both instructive and useful, if the secretaries, pursers, or others having the information would compile some accurate account of the undertakings, and would contribute them to your valuable Journal. When the times take a turn these mines are "are

to be again worked, and a record of the past would be the best of all guides for the future. I have from experience found it no easy matter to get at the records of the past work of mines. The books of old companies are inaccessible after a mine is stopped, and a complete set of circulars issued by a company an impossibility to get hold of. If records of the past were available for new companies started to rework, we should probably see in prospectuses more of facts and less of fiction than we sometimes find. It is in the province of most secretaries having books, papers, and documents before them to give, in a short form, a reminiscence of good mines that suspend, not for want of merit, but for want of present funds, and if these were contributed to the *Mining Journal* they would be available for future reference. As an instance of my meaning, I send you an account of the Cathedral Consols Mine just suspended, and it is in my power to follow this by particulars of one or two more I trust others may take the hint given. A number of sketches from different pens collected would make a useful work.

EDWARD ASHMAN.

2, Drapers' Gardens, London, September 2.

NEW HOLMBUSH MINE.

SIR,—There has been a great deal of private enquiry within the last 10 days why there was no ore sold from Holmbush the last Ticketing, so I beg to answer all enquirers through the Journal. It is not that they had less tons than heretofore, but on account of the manager finding a better market outside the Ticketing-room. The Flap-jack lode is producing some very good tin at present, and from its appearance it is likely to become a great tin mine as depth is attained. Messrs. Holman Brothers are now sinking the engine-shaft below the 175 fm. level with boring machinery. They sunk the last three weeks 16 ft. 6 ins.; first of the three weeks, 4 ft.; second, 5 ft. 6 ins.; third, 7 ft. This shows that as the men are getting more acquainted with the work and the place, the better they are able to get on. I wish them every success.

Callington, Sept. 3.

JOHN BUCKINGHAM.

THE BALKIS COMPANY.

SIR,—The circular of the Balkis Company to its shareholders, dated August 28, but issued on Saturday evening, August 29, evinces such a contempt for the intellectual capacity of the shareholders that it demands some little attention from them. It is a defence of Colonel McMurdo against the evidence narrated in my circular.

What is the defence? It is as follows:—Colonel McMurdo received, as promoters profits, many hundreds of thousands of shares and debentures; shares and debentures are "only paper," and "again paper," therefore he received only paper profits. Five times is this so-called argument reiterated. What, then, I ask in reply, did the shareholders receive for the hard cash which they subscribed? "Only paper."

"But," say the directors, "the present market value of the (Balkis) shares is sixpence each," and afterwards they assert that "the present value of 12,000 shares is 630l.," which I take to be a shilling each—which is it, a shilling or sixpence? Either way it is poor comfort for shareholders who have bought their shares on an average at 4s. 6d. a share.

Before leaving the "paper" argument I may mention that Colonel McMurdo has sold enormous quantities of the "paper" shares, and I have been told that he sold them mostly at four shillings a share, while the shareholders have kept their "paper." So Colonel McMurdo's were not "only paper."

The board say that my circular "abounds in misstatements," yet they are the recorded evidence of the officials of the company, and the board have not pointed out one single misstatement; on the contrary, the board's circular is additional evidence in support of my circular, as anyone may see who will carefully compare the two.

But, say the board, the committee was not appointed to investigate, but to reconstruct; for "no committee of investigation was appointed." Do the board forget that, before I allowed my name to be added to the committee, I distinctly stipulated that it should investigate. The board are very much afraid of investigation now, because they see what ugly facts have already been brought to light. But what were the views of the board in their circular of August 10?

"At the first meeting of the committee, it evinced a desire to examine fully into the past proceedings of your board, and into the general affairs of the company. Your directors very cordially fell in with this wish of the committee, and furnished it with all the papers in their possession, and gave it every assistance in their power. After careful investigation and much consideration, the committee recommended a plan of reorganisation." Yet the board now complain of the committee for having investigated. The board say that the other members of the committee have repudiated the report. I am not aware that they have done so. The majority of members were certainly under the McMurdo influence, and yet I have not heard of their having repudiated it; while Mr. Jeffreys, up to the end, an ardent supporter of it, and endorsed all its statements most unreservedly. The board labour to show that Colonel McMurdo was under no obligation to pay 25l. per share on the South African Syndicate shares converted by him. The supposed proof will not stand investigation; nor will the supposed facts, which they adduce in evidence, admit of proof. But even if they should, how will that free Messrs. Mockford, Malleon, and the rest, who converted upwards of 1000 South African shares, without paying the 25l. per share? By their not doing so they starved the Balkis Company, which had never any real capital except that contributed by about 800 South African shares. It is to be hoped that similar transactions will not be perpetrated in the new company. But I must confess that a letter to me from London openly asserts that an offer has already been made to the writer of it to give him new shares, fully-paid, for the proper number of Balkis shares; so that he would escape having to contribute to the capital of the new company. Under the head "Graskop," it must be observed that my statement of the evidence is practically reiterated, but in a confused manner. The property was bought from Holland for 95,000l.; from Hoare, for 138,000l.; and from McMurdo, by the Balkis board, for 300,000l., all on the same day and in the same room; while the Balkis shareholders were charged 315,000l. for it; and besides this, they gave Hoare debentures for 15,000l., and gave McMurdo bills for the same 15,000l.

Now we come to my supposed "childish and vacillating conduct." The circular of the board, of August 10, said that, on August 6, "a contract had been agreed upon" between the committee of investigation and the board. That is true. The next day I came here and received a telegram, from which I learned that another contract had been substituted after the notices had been sent out, and after the committee had closed its labours. Did that not justify me in suggesting caution to the shareholders? I had recommended the former contract. I did not wish that to be taken as a recommendation of a new contract, which I had never seen. The day of the general meeting (August 14) I went through the new contract and approved of it, and said so at the meeting. That conduct the writer for the board calls "recanting."

The board further say that I then entreated the shareholders in a second edition of my pamphlet "not to confirm the resolution." That is a most unmitigated falsehood, as anyone may see who will look at my report. Anyone who cares to consider the matter may find, indeed, so many glaring falsehoods in the board's circular that he will conclude the whole thing to be utterly unworthy of credit.

Again, the board say, in regard to the fact that reporters were excluded—"In this statement there is not one single word of truth. Take your own case, Sir, and say, What is the truth?"

Lastly, the board assert that Colonel Malleon and McMurdo, on August 5, demanded an investigation, and that I "pleaded the necessity of catching a train, and refused to comply, and made a strategic movement towards the nearest railway station." That is also false. The board forget their circular of August 10, in which they said that the investigation had already taken place. On August 5 the meeting of the committee was fixed at an early hour, so as to admit of my keeping an important appointment in the City, at 3:15 P.M. At that hour Col. Malleon and McMurdo came in, just as I had put on my hat, and were preparing to go away, and they mumbled something about

Trade Reports.

CORNWALL.

September 3.—Mining business, as far as the Share Market is concerned, has been very quiet, and so far as we can see is likely to remain so for some little time. At least it is not quite apparent from what quarter any immediate impulse to activity is likely to come. Nevertheless, shares are well held, and there is no inclination to force sales at a sacrifice, so that the general status of the market and prospects also may be regarded as well maintained. Several signs of additional improvement in the condition of the chief mines are being manifested, with practically nothing by way of drawback on the other side.

A very great deal depends for the Caradon district upon the result of the sale of South Caradon next week. We are not, however, at all sanguine that the "bal" will find a purchaser as a going concern, though we believe that wise counsels in the past would have produced a very different result than that which we now see. On the other hand, we can hardly imagine that the stoppage of the mine will cause the abandonment of practically all its neighbours. Unquestionably the consequences will be very serious; but they need not be the annihilation of mining enterprise within the Caradon area.

The chief features in the Building Trades Exhibition, which has been opened at Plymouth this week under the auspices of the Society of Architects, that have an interest for the readers of the *Mining Journal*, are the exhibits of the Kit Hill Granite Company, and of Messrs. Good, of Plymouth, which are both admirable in their respective departments. The Kit Hill granite is a stone of fine grain, good colour, working to a sharp aris, and largely adaptable to a variety of uses, many of which are illustrated by wrought examples. It is raised from one of the smaller granite patches which forms a link between the great granite area of Dartmoor, and that of which the Cheesewring is the best known feature, and the facilities for carriage from its position near the head of the navigable part of the Tamar are considerable. Messrs. Good's display is chiefly of beautifully wrought and polished marbles from the great quarries in the neighbourhood of Plymouth, the ordinary stone from which is used for lime burning or building, and the larger and finer qualities for marble. There is practically no limit to the size of the blocks that can be raised, as they occur quite up to 200 tons, and the show made by Messrs. Good included all shades of colour—black, white, red, yellow, green, dove, grey, and variegated, with a large variety of coralline, and other fossil ornamental stones. Two of the most prominent features of their stand were a couple of magnificent blocks of local jasper—one a rich red from the Compton Valley, near Plymouth, where it forms a vein; and the other a banded green from Toybridge. A visit to the Plymouth marble quarries formed a most interesting part in the programme of the arrangements for Tuesday, and was thoroughly enjoyed, everything of interest being pointed out by Mr. Good. Other exhibits which fairly come within our province are the articles in terra cotta, faience, and stoneware, from Messrs. Phillips' Works at Aller, near Newton Abbot, which make a fine collection of thorough artistic value. Of late proceedings we shall have more to say next week.

Amongst other matters that may be mentioned this week, however, preliminary to the issue of the complete list of awards, are the well-known drills shown by Messrs. Holman, of Camborne, duly medalled at the "Inventions," and the excellent exhibits in bricks, tiles, &c., of Messrs. Gilbert, of the East Cornwall Brickworks, upon which more will have to be said next week in connection with to-morrow's conference. The Architects have fairly satisfactory weather, for although their visit to Cotehele yesterday had to be paid in a storm of rain, to-day they visit Lee Moor, by the invitation of Messrs. Martin, under very pleasant auspices.

TYNE AND WEAR.

September 3.—The Coal Trade continues dull and quiet all round; the demand for some classes of coal has fallen off to some extent lately, although there is a slight improvement in the demand for gas and household coal. The shipments of best steam coals at Blythe and on the Tyne continue good. The shipments of coals and coke at Tyne Dock for the week were 101,394 tons, a decrease of 5950 tons as compared with the corresponding week of last year. During the month of August the collieries north of the Tyne have, on the whole, worked as well as could be expected. Many of the large northern collieries are now shipping the bulk of their produce at Blyth. At Ashington, now the largest colliery in the North, there has been erected during the present summer over 200 workmen's houses, and next summer it is intended to erect more. Another shaft has also been sunk at this colliery in close proximity to the old shaft. A branch railway has also been marked out to join the Newbiggin branch of the Blyth and Tyne section, with the view of shipping coals at Blyth. There is a good demand for fire-bricks and other fire-clay goods for shipment coastwise and foreign, and also for delivery at the furnaces and ironworks in the district.

The question of royalty rents on coal, iron ore, &c., has long been agitated here, but of late increased attention has been given to this important question, but there appears to be still a necessity for some organisation or combination, for without combined action little progress can be expected. In those times the lessees of collieries are obliged to submit to small profits, and the miners can only earn comparatively low wages, and the owners of the royalties ought certainly to accept reduced rates also considering the present value of coal and iron. The royalty rents ought certainly to be reduced very considerably—not less than from 30 to 40 per cent.

Progress continues to be made in applying the electric light at the surface and underground at collieries. At the Hetton Colliery, Page Bank, and other collieries in the Wear, this superior light has been in use a considerable time, where it is highly approved of, being much superior to the old system of lighting either by means of oil lamps or gas. It is now also being adopted at the extensive collieries at Backworth and Ashington, in Northumberland, and its introduction is also contemplated at other extensive works in the steam coal district. The chemical trades continue fairly active, there is a good demand for soda ash for foreign shipment, and there is also a fair demand for bleaching powder and other manufactured products in this trade. The late prices are well maintained, and there is a rising tendency generally in the value of some articles.

The feeling in the Pig-Iron Trade has been somewhat better this week. There have been a few more sales and a little enquiry, more, no doubt, because of the consumers and merchants having run themselves low of stock than from any sort of confidence in an improvement of trade to such an extent as to cause the laying in of stock for the future. The most marked feature of any sort of confidence is the extra demand for iron to be made into warrants, Messrs. Connal's store having been very greatly augmented during the last two months. The prices have been a shade better for pig metal during the present week, and 32s. is quoted for No. 3, this being the quotation for delivery during the remainder of the year. There is no change whatever in the state of the finished iron trade; the trade continues generally very dull. Shipbuilding also continues much depressed. Prices are un-

changed. The shipments of pig-iron for the week were 17,919 tons, and for the month 69,397 tons. Connal's stock is 70,860 tons, an increase of 5204 tons in the week.

The Shipping Trade is still suffering from extreme depression, and a large number of vessels continue to be unemployed on these rivers. Freights, both outwards and inwards, are at a very low ebb; a large vessel has loaded this week at 3s. 9d. per ton for Constrict. An arrangement has, however, been made amongst the owners of some of the shipping lines to increase the freights in future to the United States 50 per cent.

Little progress has yet been made towards a settlement of the unfortunate dispute at the ordnance and engineering works of the Elswick Company. The men at the shipbuilding works and steelworks, have, however, very wisely refused to join in a strike, but if a strike does occur they will contribute to the support of the strikers. The prospect, at present, is certainly very gloomy; the men have refused to submit the matter in dispute to arbitration. It is, indeed, hardly possible to take this course, as there really is, we believe, no question of wages in dispute. The men have taken an extreme and unusual course in demanding the dismissal of an official in a high position, and the feeling is so strong against that gentleman that we believe that nothing less than his dismissal will appease the men or prevent a strike. The charges made against Mr. M. Donnell appear at first sight to be trivial, but the men hold very strong views on the subject. They charge him with habitual discourtesy and want of civility, and also with many petty acts of tyranny. Perhaps the most serious charge is connected with the dismissal of a foreman named Youens, who is stated to be a man of great experience and skill, and yet it was stated as the reason for his dismissal that he was incompetent to work the forge. The feeling is certainly extremely strong, and the solution of it will prove to be a matter of great difficulty. There is no doubt that a considerable number of the men are opposed to a strike, but the majority are decidedly in favour of coming out.

All attempts to prevent the strike of about 5000 men at the Elswick Works have failed. On Wednesday the Mayor of Newcastle invited the men to meet him at St. George's Hall, for the purpose of discussing the matter, and about 4000 men responded to the call. Mr. Stephenson is a large employer of labour and a very popular man, and he exerted himself very much in order to induce the men to agree to arbitration, but in vain, and at the last moment he urged them to extend the notices for seven or 14 days; but the men positively adhered to their resolution to cease work to-day unless the company agree to dismiss the officials complained of, and thus the matter stands at present. The iron market at Middlesbrough on Tuesday was firm; there have been a good many sales during the week, and the shipments coastwise and foreign have also been large. A slight advance in prices were made, 32s. 3d. for No. 3 pig-iron prompt, and 32s. 6d. for delivery up to the end of the year.

DERBYSHIRE AND YORKSHIRE.

September 3.—With the exception of the coal trade, considerable depression prevails in nearly all other leading industries in Derbyshire, and a considerable number of workmen are entirely idle. Lead mining in the county has been quiet for a considerable time past, notwithstanding the many mines that are opened out. Many of these are worked by men who are little more than labourers, without capital, and who do not make more than labourers' wages. Ironstone mining was at one time extensively carried on in various parts of the county, but in this industry comparatively little is now being done, ironmakers finding it more to their advantage to import the ore from Northamptonshire and Rutland, where it is raised close to the surface and at a small cost. The ores raised in the oolites are richer than those obtained in connection with the coal measures, and are more easily smelted. Hence it is that they are so extensively smelted in the Derbyshire furnaces as well as those in the adjoining county of Nottingham. The requirements of the ironmakers, however, are not now so heavy as what they were in the earlier part of the year, there being a good many furnaces out of blast, whilst considerable stocks of pig are held by several of the leading makers. The local consumption is by no means so heavy as it has been, for the few forges there are have not been fully employed for some time past, although they have the most complete and modern appliances for the economical production of all kinds of rolled material. The foundries, too, are not so well employed all round, some of the largest of them being tolerably well off as regards heavy castings of a special character, whilst there is not much doing in several kinds of light work. Malleable iron castings are in fair request, and the same may be said with respect to forks and shovels, an industry for which one firm, at least, has a high reputation.

The collieries in the neighbourhood of Chesterfield, in particular, have worked much better of late, the men at some of them being able to put in full time, and that is saying a good deal for the first week in September. But the southern portion of the great Midland field, which includes Derbyshire and Nottinghamshire, owing to its geographical position as regards the London market, has an advantage over several other mining districts, seeing that it has a lower carriage rate for coal going by railway to the Metropolis. Consequently more coal is sent from Derbyshire than there is from any other two counties. Clay Cross alone sends an average of about 6000 tons a week, and Grassmoor, and some other collieries in the same district, about 4000 tons a week. Indeed, about two-fifths of all the coal that enters London by railway is sent from Derbyshire. Of late the trade to the Metropolis has shown marked improvement, but without affecting prices. These latter have not got out of the summer list of quotations; but there is no doubt they will do so in the course of a week or two, if they do not so before. The selling rates, it may be said, were very low during the summer, and however merchants may have fared, it is certain that colliery-owners had to be satisfied with very meagre profits, and some, indeed, with none at all. Of course, some of the colliery-owners, like those of Clay Cross, Staveley, Grassmoor, Eckington, and Pinxton, sell direct to consumers, and so reap the same advantages as the merchants; but then the majority have to sell through agents, who have to dispose of the consignments as quickly as possible, so as to have the wagons sent back to the collieries as soon as possible, for the continuous working of a colliery, or otherwise, depends upon the supply of wagons. Under such circumstances, coal has at times to be sold for less than it costs the colliery-owner. Steam coal has gone off tolerably well, although by no means equal to what could be produced were there orders for it. The railway companies are amongst the best customers—first, especially for locomotive purposes, for not much is sent away for shipment, as only a few collieries are in a position to send to the Humber. But another year, in all probability, will see a change in this direction by means of the railway from Chesterfield to a point near to Kiveton Park. Not quite so much hard coal is now required for blast-furnace purposes, whilst the tonnage sent to London is by no means heavy. The business doing in small coal for manufacturing purposes is not large, as the Lancashire cotton districts are not easily reached by the existing line of railway, the route being circuitous, but in the course of another year there will be a more direct line connected with the Midland.

Although there is still marked quietness in several branches of

investigation. As the investigation had already taken place, I headed them not. But it is a pure invention to say that I went to a railway station, for I did not leave town until the next day. This is unworthy of mention, except to show the way in which the board have no scruples to prevent them from inventing facts, and recording any imaginations which may suit their purpose.

In conclusion, I say that the board's circular, which shows such contempt for the undertakings of the shareholders, should be a caution to the shareholders to accept no statement that the board either has made, or may make.

ROBERT MONTAGU.
[Whatever the officials of the Balkis Company affirm by circular or otherwise the fact remains that the gentleman who is well known in London as our representative was refused admittance to the Balkis meeting on the 14th ult.—EDITOR, *Mining Journal*.]

MINING LEASES.

Sm.—On my way to Mulberry Mine yesterday, in the company of gentlemen, several of whom were mine agents, the conversation was partially on the subject of mining leases. The mine agent who introduced the subject is the manager of a mine in Illogan, who was very profuse in his harsh strictures on Mr. Conybeare's Draft Bill. He stigmatised him by epithets not fit to be applied to an honest man. He appeared to regard Mr. C. as little better than Beelzebub himself. I do not see any reason for the abuse heaped on a candidate who wishes to do the mining interest and the miners a service. He has a perfect right to address the constituency as a candidate for Parliamentary life. The agent referred to does not agree that dues should be paid out of profit only; he does not approve of the principles of Mr. C.'s Bill in any particular. It appears to me that no reasonable man can fairly, or will, object to those principles which are based on equity.

The landowners should be deprived of the power to prevent mining in their lands, as has been the case in numerous instances. I have been informed to-day that a company has been prevented from mining in St. Agnes by the refusal of a lord to join the other owners in granting a lease, and that that lord has only 1-20th part of the dues. I would work in spite of such a foolish action. The proposed Act would prevent such a shameful abuse of power. A little mind may have power to do great mischief, as in this case, preventing the development of mineral land. As to the paying dues on the gross produce of a mine, it is absurd; because, until profit be made, it is taking money out of the shareholders' pockets, while they are providing the resources of the land for the advantage of themselves and the lord. As to paying 100l. or more for land not worth, perhaps, 20l. per acre, that is another absurdity. The covenant that miners shall give up to the lords, gratis, all the buildings erected by them, is another absurdity. I remember that the houses erected by the adventurers in Crane Mine were sold for 500l. The buildings at Clifford Amalgamated, which cost thousands of pounds were sold by one of the lord's agents, and demolished for the sake of the wood, &c.

Minimum Rent.—The power of re-entry should exclude all rent on a mine. The rent paid by the West of England China Clay Company is said to be 7000l. per annum. The fact is that mining lessees are to be blamed for not asking of the lords better terms than those to which they have submitted. It is not to be wondered at that where you do not ask for reasonable terms you should be taken advantage of, and have terms of the opposite character. If the lords' agents are unreasonable go to the lords themselves, when you can in general do better. But the proposed Mining Act will set everything on a fair footing. Captain Teague said yesterday at the meeting, at Lanhydrock, that a committee had been formed for arranging measures to obtain an Act of a reasonable character, emanating from a county meeting. He referred to the Bill of Mr. Conybeare as proceeding from a dream. If a county meeting can produce something better I shall be glad to see it. An Act is certainly wanted.
True, September 2. R. SYMONS.

SILICATE COTTON, OR SLAG WOOL.

At most of the exhibitions held in various parts of the country, and in which machinery has formed not the least important feature, there has been shown a most peculiar material, light, flossy, and downy in appearance. This is what is known as silicate cotton, or wool slag, now admitted to be about the best material there is for the covering of boilers, steam and water pipes. The material has a striking resemblance to cotton wool, flakey and fleecy like thistle down, and those who are not acquainted with its composition would not easily be persuaded that it is a product of such a heavy material as iron, and the substances by which it is wrought out of the ironstone. Yet the slag is made from the ordinary iron refuse that comes from the blast-furnaces, is snow-white in appearance, and owing to its perfect combustibility, combined with its non-conducting and indestructible properties, it has during the last three or four years greatly increased in demand. In addition to its value for the covering of boilers it is now extensively used for the lining of floors and walls for the prevention of sound. There is, however, much that remains to make the fleecy slag of more general importance and value than what it now is. By arranging the varied ingredients forming slag, a material could be produced suitable for many purposes, practical and ornamental. It is entirely fireproof, and is consequently well adapted for building purposes, being so very light and almost as impenetrable as iron itself. The slag wool is produced by means of steam forced through the slag when it is in a molten state, and this causes the otherwise heavy substance to fly off in cotton-like flakes, so light that they fly all over the building in which the process is carried on, more especially to the higher parts of it. When a considerable quantity is made the cotton is gathered in a mass by means of forks, and then put into large casks or bags as may be required. For boilers the slag is made into what are termed mattresses, and in that state is placed upon the iron plates, the canvas which enclosed the slag when put upon the boiler soon burns away, and then the wool itself was left upon the metal quite naked. In that case the slag became firmly attached to the boiler, and no powdering or falling off in the particles took place. Some of the slag that had been placed upon a marine boiler, after crossing the Atlantic several times, appears as if it had actually melted on to the boiler. The value of this comparatively new material, silicate cotton or slag spray, is now coming into pretty general use, although many of the users are not at all aware of what it is produced from.

The directors of the Sheepbridge Coal and Iron Company (Limited) in their annual report states that the trading for the past year has resulted in a gross profit of 12,502l. The interest on borrowed capital and depreciation amounted to 16,913l. leaving a net loss of 4411l. The dividend on the C shares, paid in accordance with the terms on which they were issued, amounted to 5514l. This, added to the loss named above, makes a total of 9925l., which, deducted from the balance brought forward, leaves 8082l. to be carried into the current year. The directors say that the coal and iron trades have been in a most depressed condition during the whole of the financial year, and prices have receded to a level unprecedented in the history of those trades. The large stock of pig iron on hand has been valued at the reduced rates current, involving a loss which more than accounts for the unfavourable result shown. They further state that notwithstanding the figures shown in the balance-sheet they have not in any way lost confidence in the concern.

Messrs. BROOKER, DORE, and Co., write on September 1:—Tin Foreign closes at 90l. 10s. to 91l. cash, and the market has shown little animation during the past month. Consumers seem to confidently expect a collapse in prices, and are buying merely from hand to mouth, the deliveries for August being very small. Forward tin is still offered at 10s. to 20s. per ton under the price of spot.—Copper: The large supplies of this metal have brought Chili bars down to the unprecedentedly low price of 42l. 5s. cash, and at the moment there likely, sooner or later, however, to attract speculators, and there has already been some forward buying. Strong copper is nominally 55l. per ton, and India sheet 52l. to 53l.—Spelter has advanced to the extent of 2s. to 30s. owing to the conclusion of a new convention limiting production amongst the Continental manufacturers.—Hard spelter continues in good demand and is very scarce, good brands being worth 11l. 17s. 6d. to 12l.

the industries peculiar to Sheffield, yet there has been an improvement in trade generally. An increased production of steel has taken place of late, both Bessemer and crucible. Some fair orders are in hand for rails, one amounting to between 3000 and 4000 tons for exportation, whilst the Midland Company has given out a heavy contract for axles. Bessemer is also being taken for converting into some kinds of tools as well as cutlery, in addition to the considerable quantities absorbed for various kinds of forgings. Crucible steel has been in fair request for plates and heavy castings, but the demand is still considerably below the productive power. The mining tool branch is not so good as what it was, and this is the case as regards even such small matters as picks, hammers, and wedges. Business at the steel wheel works is of a moderate character, but there is a steady output of spring steel, as well as that suitable for implement makers and machinists, a good deal being for exportation to Canada and other countries. The two works engaged on armour-plates continue busy on them, and the requirements for their production—both iron and steel—will be heavy for several months to come. At both places there is, however, a good deal of other work being done, and a vast body of workmen at the Atlas Works are doing a good deal in forged steel wheels and in general rolled metal. The Cyclops Works, in addition to the armour-plate department, there is a fair amount of business doing in other kinds of mill material, whilst the company's large establishment at Penistone has been running well on Bessemer rails and ordinary steel forgings. Some of the cutlery houses have shown an improvement of late, and a little more appears to be doing on American account, but the demand is not so heavy for the highest class of goods, the price of which has advanced considerably during the year, owing to the increased cost of ivory and pearl, and which has also had the effect of making even stag hafts dearer. Machinery of a light description is in rather better request, especially that for the manufacture of sanded waters for the Continent. The foundries, too, as a rule, are rather better off, more particularly those engaged on pipes and stove grates, whilst railway wagon builders are doing more in new work.

The strike at the collieries in the Ilkeston district, in Derbyshire, was brought to a close on Wednesday, the Cossall men having come to an understanding with the company after those at the other collieries had come to terms. The strike lasted about two months.

NORTH AND SOUTH STAFFORDSHIRE.

September 3.—There is no decline in the increased demand which during the last two or three weeks has appeared for house coal, though at present the collieries are not called upon to work longer time. The forge and mill coal have better prospects before them, not only because the iron trade is looking up somewhat, but because the advance of the season will lessen the competition experienced by the Staffordshire pits proper from the Cannock Chase Mines. Staffordshire forge is 5s. 6d. to 6s. 6d. per ton. Cannock Chase selected furnace 7s. into boats; Staffordshire furnace best 9s. to 9s. 6d., and new mine coal 8s. The revival in the pig-iron trade continues, and consumers are more anxious than for some time past to enter the market. They are, however, checked by the firmer prices which vendors now demand. An advance of between 1s. and 1s. 6d. per ton is this week asked for Derbyshires, and this brings the price up to 39s., 40s. per ton. Lincolnshires are strong at 41s. 6d. delivered to stations, and South Yorkshires are 50s. Forge hematites may be had at 52s. 6d. Staffordshire part mines at 40s. to 45s., and cinder sorts 32s. 6d. to 35s.

Finished-iron masters are in better spirits than for several weeks past. A few sheet firms report more enquiries in the past ten days than during any similar period for the last eight or nine months. Such firms are this week asking an advance of between 2s. 6d. and 5s. per ton. Thus, galvanisers doubles have become 71. 2s. 6d. to 71. 5s., and trebles in proportion. Galvanised corrugated sheets maintain the advance of 5s. declared a week ago, and ordinary sorts are now quoted about 117. per ton delivered Liverpool. Superior qualities are quoted 127. 5s.

LANCASHIRE.

September 3.—During the past week an improved tone has characterised the Iron Trade of this district. There has been more business stirring, and although it can scarcely be said that any material advance has been established in prices, there has, if anything, been an upward tendency so far as pig-iron is concerned. Buyers who have been holding back are now finding it difficult to place orders at the low prices which sellers have recently been willing to accept, and offers are coming forward more freely and at better prices than buyers have of late shown a disposition to give. The increased business now coming forward is not, however, due to any expansion of requirements for actual consumption, but to a growing conviction that prices have got to the lowest, which is inducing greater eagerness amongst merchants to cover sales already made, and amongst consumers to renew expiring contracts. Lancashire pig-iron makers are firm at 38s. to 38s. 6d. less 2½ as their minimum for delivery equal to Manchester. In district brands there has been some attempt at an advance, but this has only been realised to a very partial extent, and the average prices for delivery here remain at 38s. to 39s. less 2½ with iron still to be got at 6d. under these figures. For Middlesbrough iron about 3d. to 6d. per ton above the recent minimum quotations is being asked, but Scotch iron can be bought at late rates. Hematites are without change, and are still quoted very low. Finished iron shows no material improvement, and prices remain at 57. 5s. for bars, 57. 15s. for hoops, and 57. 15s. for local-made sheets.

In a few odd cases engineers report that they are rather better employed, but the general tendency is still in the direction of decreasing activity.

With the exception that the better qualities of round meet an increasing demand for house fire consumption, the coal trade is without improvement; for general trade purposes requirements are extremely small, and prices are unaltered from last month. Of course it is only to be expected that the enlarged requirements for house-fire consumption incident to the season of the year should stimulate more activity in the better qualities of round coal, but this has not yet shown sufficient development to appreciably affect the market, and many of the house-fire coal collieries are not working more than three to four days a week. The average prices at the pit mouth remain at about 8s. to 8s. 6d. per ton for best Wigan Arley, 7s. to 7s. 6d. for second qualities, and 6s. 6d. to 7s. per ton for Pemberton Four-feet. Common round coals continue very bad to sell for iron making and steam purposes, and in some instances sellers are prepared to take almost any price to effect sales, the average quotations at the pit mouth remaining at 5s. to 5s. 6d. per ton. The small quantity of round coal being screened tends to prevent supplies of engine fuel becoming a drug, and at some collieries the better qualities of slack are rather scarce. The demand for mill and general manufacturing consumption is, however, only of a very restricted character, and common sorts of slack are abundant in the market. At the pit mouth burgy averages 4s. 3d. to 4s. 9d.; best slack, 3s. 6d. to 4s.; and ordinary descriptions, 2s. 6d. to 3s. per ton. Shipping generally is only quiet, and for steam coal very low prices are quoted at both Garston and Liverpool. The proposal to go in

for an advance of 15 per cent. in wages has been unanimously adopted at a special conference of miners' representatives held in Manchester, and if necessary, to secure this end, the whole of the mining community is to be called out on strike.

SOUTH WALES.

September 3.—The shipments of coal last week at Cardiff again suffered a declension, while at Newport and Swansea trade was well maintained. Cardiff sent away 118,366 tons foreign, and about 25,000 coastwise, with 4600 tons patent fuel; Newport, 32,158 tons foreign, and 20,988 coastwise; Swansea, 19,356 tons foreign, and about 12,000 tons coastwise, with the large quantity of 12,942 tons patent fuel. There are, however, complaints all round of the slackness of trade, not only at the docks, but at the collieries. The large consignments of coal to the various ports in the months of May and June were intended to provide for an eventuality which did not take place, and, therefore, there can be no hope for a repetition of that activity. House coal does not show any movement at present, but the time is approaching when it must do so. Quotations range from 8s. to 8s. 6d. Small coal and patent fuel are in excellent demand.

The Naval Collieries, at Penygraig, will be closed during the next three months, but advantage will be taken during that period to open out new headings, so as to shorten the distance the coal will have to travel. This is the result of the unfortunate strike, which might have been averted by a little conciliation on both sides, and has thrown about 600 on the labour market. The iron and steel works remain in about the same quiet condition. Last week Cardiff exported 2100 tons and Newport 1300 to Sundwall. Iron ore has arrived at Newport to the extent of 16,715 tons, and 6582 from other places; Cardiff received 5888 tons from Bilbao, and 379 from other places. Orders for tin-plates are now coming in more freely, and at 14s. 6d. makers will entertain business; common cokes are about 9d. lower.

FOREIGN MINING AND METALLURGY.

Prices have remained very low in France, merchants' iron cannot be carried beyond 57. 8s. per ton. The Orleans Railway Company has ordered 3000 tyres from the Commentry Works. The French Departmental Railway Company has ordered five tank-engines of 16 tons each from the Couillet Company (Belgium), at 9767. per engine. A French firm required 9807. per engine, and its tender was rejected. The imports of iron minerals into France in the first seven months of this year amounted to 791,393 tons, as compared with 790,499 tons in the corresponding period of 1884, and 956,827 tons in the corresponding period of 1883. In this year's imports German iron minerals figured for 297,146 tons, Spanish for 329,542 tons, and Algerian for 84,897 tons. The exports of iron minerals from France in the first seven months of this year were 56,046 tons, as compared with 60,475 tons in the corresponding period of 1884, and 59,066 tons in the corresponding period of 1883. The German iron trade has been weak, but prices have not shown any downward movement. In the first half of this year Germany exported 95,122 tons of pig, 70,407 tons of iron, 64,555 tons of rails, 82,024 tons of wire, and 4519 tons of axles and tyres. The report of the Laura Company (Germany) for the year ending June 30, 1885, shows that at that date the company had orders on hand to the extent of 30,000 tons, representing a value of 157,5007. The demand for rails having fallen off, it was not possible to keep the company's rolling-mills fully occupied in 1884-5.

The Belgian Iron Trade remains in a state of extreme depression; in fact, there would appear to be, if anything, a growing weakness of prices, and an increasing scarcity of orders. The Belgian Vicinal Railways Company has not approved, it appears, a recent adjudication for rails. The production of casting-pig in Belgium in the first half of this year was 38,625 tons, as compared with 28,339 tons in the corresponding period of 1884, showing an increase of 10,286 tons this year. The production of refining pig in the first half of this year was 252,299 tons, as compared with 277,696 tons in the corresponding period of 1884, showing a decrease of 25,397 tons this year. The production of pig for steel in the first half of this year was 64,547 tons, as compared with 71,461 tons in the corresponding period of 1884, showing a decrease of 6914 tons this year. It follows that the aggregate production of pig of all kinds in Belgium in the first half of this year was 355,471 tons, as compared with 377,496 tons in the corresponding period of 1884, showing a decrease of 22,025 tons this year. The total production of iron in Belgium in the first half of this year was 227,862 tons, as compared with 230,122 tons in the corresponding period of 1884, showing a decrease of 2260 tons this year. In these totals rails and plates figured for 51,693 tons, and 57,113 tons respectively. The balance was made up of miscellaneous iron. The production of steel rails, plates, &c., in Belgium in the first half of this year was 46,952 tons, as compared with 71,375 tons in the corresponding period of 1884.

Contracts have been let for 250,000 tons of coal required for the Belgian State Railways. The contracts were given out for 50 lots of 5200 tons each. Orders were also given out at the same time for 9000 tons of forge coal in two equal lots, as well as for 1700 tons of coke. A firm tone has continued to prevail in the Liège coal trade, and prices have been rather higher than those current at Charleroi. It is noticed, however, that both the Liège and Charleroi tenders for the coal required for the Belgian State lines were submitted at slightly lower rates than those named in the last previous tenders which were sent in June, 1885. The production of the Belgian collieries in the first half of this year was 8,453,858 tons, as compared with 9,010,695 tons in the corresponding period of 1884. The number of collieries in activity this year was 146, as compared with 148 a year since. It will be seen that there was a diminution in the production this year of 556,837 tons, or nearly 6 per cent. The number of trucks carrying coal and coke which passed over the Belgian State Railways in the week ending August 23 was 16,917, as compared with 16,723 in the corresponding week of 1884. The production of coal in Germany in 1873 was 36,392,280 tons; in 1883, it had risen to 55,943,004 tons. The value of the production of 1873 was 20,182,2647.; that of 1883, 14,681,4227. The production of lignites in 1873 was 9,752,914 tons; in 1883, it had risen to 14,499,644 tons. The value of the production of 1873 was 1,731,3287.; that of 1883, 1,950,0347.

From a return of the coal duties at 4d. and 9d. per ton received by the Corporation of the City of London, it appears that a sum of 167,3747. was obtained last year from the 4d., and 376,5927. from the 9d. The major portion of these sums was expended on account of the Thames Embankment and the Metropolitan Board of Works Improvement Fund. An account prepared by the Metropolitan Board of Works showed that their interest in the coal duty at 9d. produced 302,7877., and the wine duty 93967., which sums had been devoted to the repayment of loans.

HOLLOWAY'S OINTMENT.—Go where you may, in every country and in all climates persons will be found who have a ready word of praise for this Ointment. For chaps, chafes, sores, bruises, and sprains it is an invaluable remedy; for bad legs, bad breasts, and piles, it may be confidently relied upon for effecting a sound and permanent cure. In cases of puffed ankles, erysipelas, and rheumatism, Holloway's Ointment gives the greatest comfort by reducing the inflammation, cooling the blood, soothing the nerves, adjusting the circulation, and expelling the impurities. This Ointment should have a place in every nursery. It will cure all those manifold skin affections which originating in childhood gain strength with the child's growth.

Meetings of Public Companies.

THE WICKLOW COPPER MINE COMPANY.

The ordinary meeting of shareholders of the company was held at the offices, Grafton-street, Dublin, on Monday, for the purpose of receiving the directors' report and accounts.

The chair was occupied by Mr. C. CUMMINS, Deputy Chairman. Mr. THOMAS BAKER (the secretary) read the following report:—In accordance with the resolution passed at the general meeting in October last the accounts have been made up to the 30th June (covering a period of ten months from the last statement), and they are now submitted to the shareholders. It will be seen that after paying all charges there remains a net surplus of 16167. 11s. 3d. on the working of the period, which amount has been carried to the credit of profit and loss. The Arklow manures are steadily progressing in favour of the agricultural community, and the arrangements which the directors are making to ensure a very much larger sale next season are certain to result in a substantial profit to the company. A considerable outlay has been made on the ochre plant, and the company has been thereby enabled to produce a marketable ochre of uniform quality in quantity, and at a reasonable cost. Already a couple of cargoes have been sent to England and several parcels to Scotland, and negotiations are in progress with English and Scotch firms desirous of becoming agents for the company's ochre, and who are prepared to push the sale of it in preference to any other ochre of the same character. The plant and buildings at Arklow have been not only maintained in good order, but many valuable additions and improvements have been made to them, and all the machinery and appliances at the mine have been cared for. The directors retiring by rotation are Messrs. E. Breslin, J.P., and Charles Cummins, both of whom being eligible offer themselves for re-election. The outgoing auditor is Dr. E. Perceval Wright. The CHAIRMAN, in moving the adoption of the report and accounts, said he might fairly congratulate them on the result of the last ten months. They had honestly and justly earned a very fair profit, and he was quite confident that on the next occasion he would be in a position to announce a very good dividend, which indeed they had already earned.—Mr. TYNDELL seconded the motion.

Mr. HUGHES criticised the accounts. The CHAIRMAN briefly replied. The reports and accounts were adopted. On the motion of Dr. WRIGHT, seconded by Mr. JACKSON, Messrs. Edward Breslin and C. Cummins were re-elected directors. The outgoing auditor was Dr. WRIGHT, and the CHAIRMAN and several Shareholders appealed to him not to retire. Dr. WRIGHT having consented, a resolution was adopted reappointing him.—The meeting then terminated.

MID-DEVON COPPER MINING COMPANY.

The 15th ordinary general meeting of shareholders was held at the offices of the company, 72, Finsbury Pavement, on Monday, Mr. THOMAS NICOLLS ROBERTS in the chair. Mr. W. H. RICHARDS (the managing director) read the notice convening the meeting. The report circulated by the directors was taken as read.

The CHAIRMAN said: Gentlemen, at these meetings it is expected that the Chairman should offer some observations, but there is very little to add to what is clearly and concisely stated in the report, a copy of which has been sent to every shareholder, with the memorandum therein alluded to. We have given the shareholders an opportunity of protecting their own interests, but the response has been wholly inadequate to meet the necessities of the case. They have been informed that if they will not find the money the concern must be wound up, and by their silence it is clearly their desire that this should be the case—a desire that will most likely be gratified. One considerable shareholder sent a mining expert to inspect the mine on Friday last, but whether the report that has been furnished by the expert to that shareholder will induce him to take any steps I do not know. What the directors require is that at least 2000 of the residue of the 6000 preference shares should be taken up in order that the mine may be thoroughly proved at the depth that has been already reached, or at the 100 fms., if it be considered desirable to sink the 2 fms. further to reach that point. I may be permitted to offer a few remarks as to our probable prospects, if the thorough proof of which I have spoken should be accomplished. In mining you can only reason from analogy and known facts. You can foresee nothing, and I shall make no attempt to prophecy, notwithstanding my own clear opinion. As you are informed in the report, we made everything subordinate to the sinking, and, therefore, kept the 50 fm. level untouched; so that, if anything happened to interfere with the sinking, we might put the men thus compulsorily driven out of the shaft upon profitable labour, and the event has justified our policy. You are told in the report that we have raised "from 3 to 4 tons of good copper ore weekly;" but, as a matter of fact, we have raised, during the last four weeks, an average of 5 tons weekly, and this from one stop. Now it is an admitted fact—that is no prophecy—that all large lodes (and I believe ours is the largest known lode) become richer and more concentrated as depth is attained, so anyone may judge what our position would be if the thorough exploration of which I have spoken were effected, and we had several stopes in work at the deepest point. My own opinion is that all the intermediate levels would pay, and pay well, if they were worked, but there would be a large amount of dead work to do before the ore could be reached. It may be said, if that is your opinion, why did you not try them instead of spending all this money upon sinking? My answer is very short. What we have done has been upon the advice of our captain at the mine, a thoroughly capable man, as has been proved by the report of all the experts who have inspected the mine. His advice has been to this effect:—"Sink to such a depth that you are morally certain to find ore in such abundance that you will be able to prove the intermediate levels without calling upon shareholders for any subscription." Now, Captain Neill, according to his means, is a large shareholder, and his faith in the ultimate productiveness of the mine is unbounded. Well, I said I would reason from analogy. There is a small mine—small I mean by comparison with ours—about 3 mile south-east on the hill at the other side of the valley, called Wheal Emily. Their lodes run parallel with ours, and are in the same geological formation. They have, I believe, reached a depth of 107 fathoms. They have raised and sent to market a parcel of ore every month from April to August inclusive. The parcels have been small it is true, but the mine is small, and the working hands are few, but they have sent in the aggregate 111 tons, and the average price has been 47. 6s. per ton, or nearly twice the average price of the entire quantity sold from all the mines sending ore to Truro during the same period, and during a great portion of the latter part of the five months they have been prevented from working the most productive part of their mine owing to the drought. We shall send a parcel of ore for sale at the next Ticketing, but I am not going to tell you that we shall sell for the same price, as our ore comes from the 50 fathom level, whereas that from Wheal Emily is raised from some 40 to 50 fathoms deeper, but if we should be able to work out 100 fathom level, I have no doubt that the quality of ore to be found there would be at least equal to that raised at Wheal Emily. My belief is that, even should copper remain at the low price now current, we should be able to work the 100 fathom level at a handsome profit. An output of 50 tons of ore per month would enable us to pay all our expenses of all kinds, and leave a small profit, and if one stop is yielding at the rate of 20 tons per month, with every prospect, as Capt. Neill says, of continuing to do so, anyone may easily judge what our position would be if several stopes were being worked. And this is the concern which the overwhelming majority of the shareholders wish to abandon. It has been conducted for the last three years and a-half upon principles of the strictest economy; the directors have not only taken no fees, but have provided the greater portion of the working capital. Holding a large number of original shares myself I have been naturally desirous to keep the concern going until it arrived at a paying condition, but as the other original shareholders will not lend a helping hand there is nothing for it but

to wind-up the concern, for which purpose we shall, ere long, call the shareholders together, unless in the meantime we receive any proposition which may have the effect of averting such a catastrophe. In addition to what I have said I may just give you an illustration of the spirit by which the bulk of the shareholders are animated. Early in June three of the shareholders went down to the mine, and they saw the property. One of them said to the captain, "I should like to see the lode out at the 100." Of course he would, and so would everybody.

Mr. HARRIS: Then let him give a helping hand to get there. The CHAIRMAN: But that is what he will not do. That is a fair type of the bulk of the shareholders. The Chairman then moved the adoption of the report.—Mr. RICHARDS seconded the motion, which was carried unanimously.

Mr. HARRIS: Do you say that only a third of the shareholders are willing to subscribe?—The CHAIRMAN: No; only about a twentieth part.

Mr. HARRIS: What would you issue the shares at?—The CHAIRMAN: At the same price as those already allotted. I took and paid for about 1000. One shareholder, with a stake in the company amounting to 2½ 3s. 4d. wants the company wound up. He is a member of the Stock Exchange.

The following report just received from the manager was read:—Surface: Pumping machinery throughout in good working order, and a plentiful supply of surface water would quickly drain the mine to bottom of shaft. The little rain this week has not been sufficient to cause any lasting increase to surface water, but we may shortly expect sufficient for our requirements; the water is now to bottom of 70 fm. plat.—C Shaft: The stope in back of cross-cut, north from 70 east, worked by 12 men, will now yield 2½ tons of ore per cubic fathom, and is surrounded by strata that conduces to its continuance, being highly charged with mineral, and intermixed with large quantities of chlorite, hornblende, quartz, &c.; the deposit of ore is dipping towards the north wall of the lode and eastward, and if it continues in that direction it will be necessary very shortly to resume the cross-cut north from the extreme end of the 50 east.—J.S. NEILL.

The CHAIRMAN said there was every reason to believe that the lode would improve in size and value as depth was attained. It would be seen that from one stope they had raised 6 tons of ore in the week, and it was easy to calculate what would be the result if they had several stopes at work.

The meeting then closed with a vote of thanks to the Chairman.

LEVANT.

A 16 weeks' meeting of the shareholders in Levant was held on the mine, on Tuesday, Mr. RICHARD WHITE presiding. The labour costs were 5318s. 8d.; merchants' bills, 1604s. 5s. 7d.; coals, 329l. 14s. 7d.; rates, 62l. 13s. 5d.; interest and commission, 49l. 8s. 3d.; balance in favour of the mine, 1692l. 11s.; total, 9057l. 6s. 6d. The credits were—Balance in hand at beginning of the 16 weeks, 376l. 16s. 9d.; tin sales, less dues (142 tons 15 cwt., 2 qrs. 4 lbs.), 6898l. 11s. 1d.; copper (331 tons 9 cwt.), less dues, 1534l. 12s. 1d.; arsenic (53 tons 9 cwt.), 234l. 19s. 6d.; discount, 12l. 7s. 1d.; total, 9057l. 6s. 6d. A dividend of 10s. per share was made, which would take up 1192l. 10s. and leave a balance in favour of the mine of 500l.

WEST WHEEL FRANCES.

A meeting of shareholders in West Wheel Frances was held on Thursday.—Mr. WALTER PIKE (the purser) presided.

Labour costs for the 16 weeks were 3572l. 3s. 8d.; merchants' bills, 1474l. 10s. 3d.; bankers' charges for the half-year, 25l. 15s. 5d.; Illogan parish rates, 47l. 1s. 9d.; total costs were 5119l. 11s. 1d. On the credit side 95 tons 6½ cwt. tin realised 4796l. 5s. 2½, less dues, 159l. 17s. 6d.=4636l. 7s. 8d.; extra carriage of tin 15l. 3s. 9d. This left a loss on the four months of 467l. 19s. 8d., this making their present position, with a previous credit balance, 400l. in debt.

Capt. JOSHUA THOMAS read the report of the agents, which stated the rise over the 174 fathom level on the flat lode is up 180 fathoms. About a month after the last meeting of the adventurers we found the water coming from the upper part of the rise was increasing, and as there was some reason for believing that some levels from South Condurrow old workings were driven somewhere near the rise, and that those workings might possibly be filled with water, we thought it prudent to stop rising for the time so as to avoid any possibility of endangering the safety of the men. We have since been endeavouring to get down into the old workings at South Condurrow in order to ascertain whether they were full of water or otherwise, but have not hitherto been successful. The new shaft is sunk 28 fms. below the surface, and we expect to intersect the flat lode in this shaft in about 7 fathoms further sinking, or in about a month from this date. There will then be 20 fms. to communicate from that point to the top of the rise on the course of the lode. If we find that we can with safety resume the rising, a few weeks will complete this work. Since stopping the rise we have put the boring machine to drive west about 40 fms. above the 174. This end is now 36 fms. west of the rise, and has passed through good tin ground for nearly the whole of that distance. The lode in the present end is worth 25l. per fathom. We have sunk 3 fms. below the 174 in order to ascertain the value of the lode below that level. We find that it has not at all declined in value, being worth 50l. per fathom. We need scarcely remind the adventurers that we are working the mine under very disadvantageous circumstances, which cannot be altered until the new shaft is attained to the rise, and a skiproad fixed therein. We shall pay every attention to this work, so as to complete it as quickly as possible. We may further observe that in addition to the extra cost of working underground the new shaft sinking below the surface has cost in labour and materials at least 500l. in the past four months.

Capt. THOMAS: So that you see, gentlemen, that in addition to the very disadvantageous way in which we have been working underground—taking that into account—we have actually even now about paid the costs of the mine, leaving out the sinking of the new shaft from surface, which is dead-work. Besides we have spent some 30l. or 40l. in trying to get at the old South Condurrow workings. Whether in the last matter we shall be successful or not, I cannot say. We intend to make a further trial. If we could only ascertain that those workings were not full of water we should resume the rise immediately, and in a very short time should communicate to the shaft. The driving of the level westward 40 fms. above the 174 is a very important point indeed. It proves that the tin we had in the rise is no longer a "pipe," as some people said it was. (Applause.) We have driven through 36 fms. of very good tin ground. (Applause.) We are rising in the back of that level 15 fms. west of the rise, and in as good a lode as we have had in any part of the mine. (Applause.) Below the 174 the lode has not declined in value, but has improved rather than otherwise. It seems to be getting larger and more valuable. Some people seem to imagine we cannot sink far below that level. I may say we have 120 fms. before we get out of our rights.

An ADVENTURER: What length have you after you get down there?—Captain THOMAS answered that east of the cross-course they had scarcely done anything. To the east they would have the flat lode the entire length of their sett. They had only cut it at the 132 and the 154 in that direction. They thought the best thing to do was to get this shaft down as soon as possible. They could not endanger the safety of the men with the old workings of South Condurrow so near them. They could sink the shaft through without this, but it would take from two to three months longer.

Mr. C. W. CLINTON: I understand there is not much water coming from the rise?—Captain THOMAS: No.

Mr. CLINTON: Does it not tend to the presumption that the water has been drained?—Captain THOMAS: I think so.

Mr. CLINTON: Is there any pressure of water in the new shaft?—Captain THOMAS: No.

Mr. CLINTON: I believe the lode in the rise was to value when you stopped?—Captain THOMAS: Yes; of very fair value. I hope to get to the flat lode in a month. We have only 7 fms. more.

Mr. M. H. WILLIAMS: If so, is it of any use to spend money on

these old workings?—Captain THOMAS: We should save a month or two.

Mr. WILLIAMS: What you are doing is clearing up the shaft?—Captain THOMAS: We have sunk the new shaft—the old shaft had run in—to cut under the stall. We had got down 15 fathoms in a month, and we found the stall was broken, and all the stuff had jammed in the shaft. How far down we do not know. The only thing is to sink the new shaft by the old one.

Mr. WILLIAMS: Can you save a month?—Captain THOMAS: Time is money. After cutting the flat lode we shall have 20 fathoms further to sink.

Mr. WILLIAMS: When you cut the flat lode what will be the effect? Will it drain these workings?—Captain THOMAS: I do not suppose so.

Mr. WILLIAMS: And there is a good lode in sinking?—Captain THOMAS: Yes.

Mr. WILLIAMS: Does it dip east?—Captain THOMAS: I think it is going down with the cross-course.

Mr. WILLIAMS: It is important to see such a fine lode below?—Captain THOMAS: Yes. I do not apprehend we can go on to any great depth without pumping machinery. Suppose we sink 20 fms. we should, no doubt, have water.

Mr. CLINTON, in answer to Captain THOMAS, said the lode in the 154 at East Grenville, where the lode was a good one, would be met with in West Frances.

Mr. WILLIAMS enquired how far was this lode from their boundary?—Captain ROWE: I suppose from 70 to 80 fms. He added that the deeper levels in Wheel Grenville would drain them. Last month they drove 7 fms. They had in Wheel Grenville sett the 165 fm. level, by contract to be driven 100 fms.

Mr. WILLIAMS asked what of the 150 end in Wheel Grenville?—Captain ROWE said the end was not worth very much five or six weeks ago; but it had since improved. The course of tin behind the 150 end was a splendid one.

Mr. WILLIAMS: They have had several rich pipes of tin, have they not?—Captain ROWE: Yes.

Mr. CLINTON: They are 40 fms. from our boundary, where we have a lode of the value of 20l. per fathom.

The CHAIRMAN: I regret this time we show a small loss; but I think that has been fully explained by Captain Thomas. That is owing to the capital account. But for that we should have shown a little on the other side. I am rather disappointed that we have been obliged to stop the rise; but it has not been unsatisfactory, for it has enabled us to drive west, and to prove that we have a large extension of tin ground, and not a pipe of tin, as some imagine. I hope by the next time we shall get over the difficulty, that the shaft will be holed, and that we shall be in a fair way of working. (Hear, hear.) During the last eight weeks of the 16 we have returned something like 7 or 8 tons per week. If we continue in the same way during the next account, we shall show a better state of things.

Captain THOMAS said that the water came down from the rise, and, with other matters, they would do nothing for three or four weeks. That was the reason of their small returns.

The CHAIRMAN said that since the last meeting they had met together with the lord's agent and the representatives of Wheel Grenville and West Basset, and they had definitely arranged the boundaries by placing posts and lines.

Mr. WILLIAMS: I move that the accounts be adopted. I have come here with very great satisfaction to hear this report to-day, and to hear Captain Thomas' explanation of what he has been doing since the last account, because I thought he left out a part of the chapter that he ought to have introduced—that of the alarm that had followed the last meeting in regard to cutting the water of the old mine. Perhaps the stopping of the rise has really been of benefit to us adventurers, because it has opened up the western ground, and shows us that instead of having a pipe of tin as reported, we have really a mine, and this also enables us to go on driving the ground to a certain depth below the 174. I looked at that assertion of Captain Thomas in regard to the ground below the 174 as one of the most important parts of this discovery, because it is richer in depth, and it appears to make us think that this is something like Dolcoath—not that we have a Dolcoath here, but that the deeper we are going in Dolcoath the deeper it is, and here you are going richer as you go deeper.

Mr. JOHN MAYNE seconded the resolution was adopted, and the meeting separated.

THE BALKIS COMPANY.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, on Monday.—Colonel G. B. MALLESON, A.S.I. (the Chairman of the company) presiding.

Mr. F. POWER (the acting secretary) read the notice convening the meeting, which stated that the meeting was called for the purpose of confirming the resolutions passed at the extraordinary general meeting of the company held on Friday, 14th August. The minutes of the preceding meeting were read and confirmed.

The CHAIRMAN: Gentlemen, it now becomes my duty to submit to you for confirmation or rejection the resolutions which were passed with but one dissentient voice at the last meeting. I am advised that it is not open to anyone to speak this afternoon except for the acceptance or for the rejection of these resolutions, and I must ask any gentleman who follows me on this point to speak to that question. I beg now to propose the confirmation of the first resolution:—"That it is expedient to transfer or sell the undertaking and property of this company to another company, in consideration of shares in such other company to be distributed amongst the members of this company, and that with a view thereto this company be wound-up voluntarily, and that Mr. Frederick Maynard (of Messrs. Frederick Maynard and Co.), 14, Queen Victoria-street, and Mr. Allen H. P. Stoneham (of Messrs. Monkhouse, Goddard, and Co.), 28 and 29, St. Swithin's-lane, be and they are hereby appointed liquidators for the purpose of such winding-up."

Mr. JOHN WALKER: I shall have great pleasure in seconding that resolution.

The resolution was put and carried unanimously.

The CHAIRMAN: I will now propose the confirmation of the second resolution:—"That the conditional agreement submitted to this meeting be and the same is hereby approved, and that the liquidators be and they are hereby authorised and directed, pursuant to section 161 of the Companies Act, 1862, to adopt on behalf of this company the said agreement, and to carry the same into effect."

Mr. JOHN S. BARTON seconded the proposition.

Mr. DALE (the solicitor) read the terms of the agreement referred to in the resolution.

The CHAIRMAN: Gentlemen, the proposal to confirm this resolution has been made by myself, and seconded by Mr. Barton. I will now ask all who are in favour of it to hold up their hands.

Mr. MEARS: I want to speak—

The CHAIRMAN: Is it in reference to this resolution?—Mr. MEARS: I want to move an amendment.

The CHAIRMAN: You cannot do that.

A SHAREHOLDER: He can propose the rejection, I suppose.

The CHAIRMAN: Yes; he can move the rejection of the proposition. Perhaps Mr. Mears is not aware that the first resolution has been carried.

A SHAREHOLDER: It seems to me that the contract should have been printed and circulated amongst the shareholders.

The CHAIRMAN: It was read to the meeting on the last occasion.

Mr. MEARS: I am quite in favour of this meeting confirming the reorganisation of the company, but with the distinct understanding that Colonel McCulloch and the late Chairman and directors of the Balkis Company be held liable for any shares issued in payment of lands that have not been legally transferred to them, and that no shares of the new company be issued in exchange for debentures until legal transfers have been duly registered in their names by the registration of deeds in the Transvaal. That was what I wanted to move as an amendment. (Hear, hear.)

The CHAIRMAN: The resolution to which that amendment refers has already been passed. ("No, no.")

Mr. MEARS: I have an answer to the last circular issued by the board, which I will read if you think fit. ("No," and laughter.)

The CHAIRMAN: I am legally informed by my learned friend on my right that this resolution must be confirmed or rejected. There is no middle course.

Mr. SPOONER: I should like to ask a question. You said at the last meeting that Mr. Holland had 6000l. in hand. If you cannot recover that amount will the board be responsible?—The CHAIRMAN: The board will be responsible for everything that has been done illegally. The matter will be in the hands of the liquidators, who I am quite sure will do their duty, whether to members of the board or to other gentlemen. (Cheers.)

Mr. SPOONER: I take it that the money was deposited to obtain the Graskop property.

The CHAIRMAN: It is no use talking on false premises. I will correct you on that point. Mr. Holland was the legal adviser of the company in the Graskop matter, and we paid the money to him as agent of the company to pay out the diggers who were on the property.

Mr. SPOONER: Have you settled about the Graskop property altogether?—The CHAIRMAN: That particular part of the property upon which the diggers were who were to be paid the 6000l. is not in our possession, the other parts are.

Mr. MEARS: We can be turned out to-morrow. (Cries of "Order.")

The CHAIRMAN: We shall be able to get possession.

Mr. CRANE: After the debts and liabilities of the old company are paid what working capital shall we have?—Mr. SHERIDAN: I rise to a point of order. We have to confirm or reject this agreement. I have several questions to put, but let us do our business in proper order. (Hear, hear.)

The CHAIRMAN: I am not able to answer the question at this moment. All the liabilities will be fairly tested by the liquidators, and what are not proper liabilities will be rejected. The liquidators are honourable gentlemen, and to-morrow morning it will be my pleasing duty to place the whole of the documents belonging to the company in the hands of those liquidators. (Hear, hear.)

Mr. GREY: Have the liquidators satisfied themselves that the properties they are asked to take over from the old company are properly in the possession of the old company before they take them over? Does the agreement give them power so to do? and does it make it incumbent on them so to do?—The CHAIRMAN: Perhaps you will sit down having asked the questions. (Laughter.) The liquidators have not entered on their duties at the present moment. They will enter into them to-morrow morning, and, I am quite sure, being the gentlemen they are, they will do all that is quite proper and correct. I cannot answer the question any more fully.

The resolution was then put and adopted, only four shareholders dissenting.

The CHAIRMAN: Now that the business of the meeting is over I shall be happy to answer any question that may be put.

Dr. BISHOP said when, a few weeks ago, he was asked to be a director, he had not the slightest idea of being anything more than an ordinary shareholder in the company; but the current of events seemed for the moment almost irresistible, and he had felt compelled to comply with the request of several gentlemen, for whom he had the highest respect, that he should take some part in the future management of this company. He had no wish to do so, and at this moment he would gladly recede from the position he had agreed to take up, if he did not firmly believe that there was an excellent future for gold miners in South Africa, even though at the commencement they might be doomed to suffer grievous disappointments. He believed that those shareholders who stuck to the ship would be rewarded; and he believed this not only of the Balkis, but of the Lieben Berlyn, the Graskop, and other Transvaal companies. With prudence and discretion in the management, he believed that the results would ultimately be satisfactory to the shareholders. (Hear, hear.) He had been put upon his mettle a little within the last few days by people referring to the company as a "magnificent swindle," a "simple swindle," and an "undoubted swindle," and he had said to himself, "Surely it requires serious consideration to become connected with what honourable men call a swindle;" but he had come to this resolution—that he would not recede. Having taken what he considered the wise step of reducing their capital, perhaps a little too much, it was for them now to sit down and calculate calmly how things were to be carried out. (Hear, hear.) It had been asserted in some of the literature—that had been far too abundant on both sides probably—that those gentlemen who had been asked to take the affairs of the company into their hands were nominees of the late board. Though he had great respect for the members of the late board, he most distinctly stated that he would not accept the position of a director on those terms. He had been requested by three members of the committee, by several large shareholders, and last of all by the board to take some part in the future management, and the last meeting having almost unanimously approved of the selection of himself as a future director, he thought it unfair to say or print that he, at any rate, was a nominee of the late board. (Shame.) What they had to do was to look to the future and to pull all together to make the thing a success. He trusted that the new board would have the sympathy and support of the shareholders, and that the 2s. per share would be readily subscribed, so that the company might have a proper amount of working capital. He trusted, too, that they would develop the land which had come to them through Mr. Mears, and he trusted that that gentleman would be a warm supporter of the company, and would not issue any more literature on contentious matters. (Hear, hear, and laughter.) They must as soon as possible get absolute legal control of the magnificent tract of territory, and he was sure that if, as some seemed to suppose, there had been anything like fraud in the inception of the company, the liquidators would declare it to the shareholders. He wished to ask the Chairman if he would consent to give the new board his presence and assistance for a few weeks, so that they might get all the information which would be required to enable them to act wisely and with the greatest possible discretion. (Hear, hear.) They had all seen the thorough grasp which Colonel Malleson had of the affairs of this company; and he would venture to ask further, whether, provided any sort of stigma was removed from that gentleman by the report of the liquidators, it would be congenial with the wishes of the shareholder that the new board should ask Colonel Malleson to join the board again. (Cheers.) He took it that the whole of the shareholders, or, at all events, with very few exceptions, would look upon such an appointment as an accession of strength to the company. (Hear, hear.) If success was to be dependent on the personal and active exertions of himself and his colleagues, the shareholders would have that success, provided the gold was there. (Laughter.) If, upon close examination, it should be found that there was not sufficient gold to pay, then the shareholders would be so advised at once. Personally, he firmly believed in the further success of the company. (Cheers.)

The CHAIRMAN: As Dr. Bishop has appealed to me in a manner which requires an almost immediate answer, you will excuse me if I rise to answer that appeal, and I say to you most unreservedly that so long as my services are required to help the new board to unravel the tangled web of the affairs of this property, if it is tangled, I shall be glad to place myself wholly and unreservedly at the disposal of the new board. (Hear, hear.) With reference to the other question, I feel that having served the company so long it would be not very brave on my part if I were to abandon it if my services were required. (Hear, hear.) But at the same time, as I said at the last meeting, my consent to join the board if I were asked to do so must be dependent on the enquiry which your liquidators will make. I have myself not the smallest doubt as to what will be the result of that enquiry, and I am quite certain that some gentlemen, whose motives were of the very best, will be bound after a very short interval to admit that they have spoken in too great haste. (Hear, hear.) But I admit the excellence of their motives, and I can assure them I shall never bear them any grudge for the part they have taken in endeavouring to defend your property. (Hear, hear.) For my part I can only say that it has been to me a very great pleasure to hear the manner in which the words of Dr. Bishop relating to myself, and to my ultimately going on to the board were received by you. (Cheers.) I can only add that though in our stewardship of your property my colleagues and myself have brought you no result, it has not been because we have not given to the development of that property all the care and all the industry which, as honest

men occupying the position which we did occupy, we were bound to give to it. I thank you most heartily, gentlemen. (Cheers.)

Mr. CRANE asked whether the directors had satisfied themselves that the new company would start with sufficient working capital?

The CHAIRMAN: I am very glad to answer that question. It depends on that gentleman and other gentlemen in the room; but if the money is subscribed the capital will be sufficient. (Hear, hear.) That is what the committee have stated.

Mr. JEFFERIES said he believed that in Dr. Bishop they had a first-class man, and one who would give his best attention to the affairs of the company; but he did not quite agree with the reconstruction scheme, because he did not believe that after paying off their liabilities they would have sufficient working capital. However, it would be a mistake to raise querulous matters at the last moment. Let the new board have a fair trial, and if the gold were there for goodness sake let the shareholders have it. (Laughter.) He regretted that in their latest circular the directors had referred to some of the other circulars as vulgar abuse; but he hoped the Chairman would bear him out in saying that he had been actuated by honest intentions, and not in any way by malice. (The CHAIRMAN: Hear, hear.) Indeed, the directors had stated on a former occasion that but for his assistance on two occasions the company would have gone to smash. (Hear, hear.) They had had some hard fighting, but he believed the agitation would have done good. (Hear, hear.) Personally he wished every success to the company, and he trusted that both sides would bury the hatchet. (Cheers.)

Mr. SHERIDAN moved a vote of thanks to the Chairman for his services in the past, and for his conduct of that meeting.

Mr. ADAMS seconded the motion, which was carried, and the meeting then closed.

THE CALLAO BIS GOLD MINING COMPANY (LIMITED).

The fifth annual general meeting of the shareholders held at the Cannon-street Hotel, yesterday.

Mr. CHARLES RONALDSON (the Chairman) in the chair.

Mr. J. H. THORNTON (the secretary) read the notice calling the meeting; the report and accounts were taken as read.

The CHAIRMAN said 12 months had elapsed since they last met; he saw present to-day many old faces which were present then, which showed that their interest in the company was as great and strong as ever. They were now met to discuss the past and to arrive at some important conclusion with regard to the future. When they met last year he led them to suppose that before they again met the directors would be able to present such a report of the results of their labours as would satisfy the shareholders. But they had had great difficulties to contend with. Some time ago the directors congratulated themselves upon the appointment of Mr. Volvelder as manager. That appointment seemed at the time to be a very satisfactory and wise one; he was originally recommended by the El Callao Company, and the directors hoped that Mr. Volvelder would bring the company to a dividend-paying condition. These expectations had not been realised, and the directors in their report did not hesitate to state that they considered the arrangement and the working of Mr. Volvelder on behalf of the company were unsatisfactory. If there was anyone more responsible for that change of management it was himself; for he came to the conclusion some time since that the broken promises and misstatements made by Mr. Volvelder necessitated strong measures being adopted at once. It was six months since Mr. W. Bell-Davies went out to report on the mine, and the shareholders might to-day congratulate themselves upon having an honest, straightforward manager, who would not be extravagant, and who would do credit to the company. The shareholders were indebted to Mr. Bell-Davies for the report he had presented. Mr. Bell-Davies went out with the full support of the board, and the arrangement which he made with the El Callao Company was of an important nature. Mr. Bell-Davies recommended the directors should follow two courses, or adopt either one or the other of them, but the one which the directors thought most useful was to accept the original proposition which was submitted to the El Callao Company—that the Callao Bis Company should pay a proportion of the driving of the Panama level in the El Callao Mine up to the Callao Bis boundary. At the time of Mr. Bell-Davies' inspection that level was within 90 fathoms of the Callao Bis boundary. Since the report had been issued the work had progressed well, and they were now 53 fathoms from the boundary of Callao Bis. The past year had been eventful, and also disappointing. It had been eventful in two, if not three respects—the change of managers, and the friendly relations with the El Callao Company. This put the company in a more satisfactory position on the other side, and led the directors to hope that within a reasonable time they would be able to put before the shareholders such evidence as would convince them that they were nearing the time of profits in this company. Mr. Bell-Davies was now present, and would be most happy to answer questions. If in the past the directors had been perfectly satisfied with the value of the property there was certainly no reason whatever to doubt its value now. The shareholders were called together to-day for two objects—first to discuss and approve the report and accounts, and in the next to ask the shareholders to approve the plan of reconstruction of the company. A year ago he said here that the directors would require, to carry on the company, to issue 12,000*l.* or 15,000*l.* That sum the directors had not received. The total amount of debentures issued amounted to 9200*l.* Some time since, when the directors saw it was necessary that further capital should be provided, they thought it advisable to take into consultation the largest shareholders of the company, to see by what means they could raise sufficient capital without calling upon the shareholders. That meeting took place, and the amount which the directors stated they would require was 6000*l.* Finding the shareholders were not disposed to take up their proportion of debentures, it became the duty of the directors to take steps promptly to put this company in a sound position. There were nearly 4000 shareholders, and it was right and proper that every shareholder should bear his burden and his portion of the expenses, and then all would share in the profits. The directors lost no time in protecting the property, and putting before the shareholders plans by which it was absolutely necessary that every shareholder should bear his proportion of the expense. Therefore he should, at the extraordinary general meeting, move a resolution by which it was proposed to issue shares of 1*l.* each, with 15*s.* per share credited as paid. The directors had taken all the circumstances of the case into consideration, and they thought the amount thus proposed to be raised would be sufficient to put the company into a sound and solid position. There was no intention of calling up the whole of the outstanding 5*s.* per share, as it would not be required. He believed that the moment this scheme was carried out the shares would be more valuable than they were to-day. It was no use making arrangements to-day which would merely carry on the company for a few months, but they must have sufficient to ensure making the company a success. The accounts presented to-day were made up to 30th June in London, and to the 30th April at the mine. It was impossible to have the accounts at the mine brought down to the same date as in London. So far as he could gather or learn of the expenditure on the other side, they had no liabilities there as far as he knew. It was difficult to control the expenditure on the other side. The arrangements now existing were of a more moderate character than they had been for some little time past, and the expenditure on the shaft had been stopped, in order to await the nearer approach of the El Callao level to the Callao Bis border. He moved the adoption of the report and accounts.—Mr. JAMES COCKBURN seconded the motion.

Mr. JUSTAV HIRSCHFELD asked what were the present expenses per month?—The CHAIRMAN said that up to a recent period the expenses had been 800*l.* per month; they were now reduced to 400*l.* or 500*l.* per month—nearer the former sum than the latter.

Mr. BLADON suggested that the shareholders would like to hear a few words from Mr. Bell-Davies.

Mr. W. BELL-DAVIES said he had explained the position of the property in the report which he had handed to the directors; but technical reports were not always understood by all the shareholders, and, therefore, he would state in two or three words exactly how the

company, in his opinion, was placed. Everybody was aware that the El Callao Company—the adjacent company—had been the most successful gold mine owned by a public company which the world had ever seen, and which had produced large returns to the shareholders; and since he left the country it had again struck rich in depth. That mine when he was there was worked to within 90 fathoms of the Callao Bis boundary, and the direction in which the lode was going down was pointing directly towards this company's property, and he took it that this company was started with the view of finding that lode. But unfortunately the Callao Bis property was covered deeply with decomposed matter, so they could not see the bed-rocks, or follow the lodes at the surface. The El Callao Company had proved the lodes 600 ft. in depth, and all the work done underground on their property was *bona fide* discovery, and pointed to ultimate success with respect to the Callao Bis Company. If they worked at the surface the probability was that they would sink the shaft a little too much on one side or the other of the lode, and he, therefore, suggested that the tunnel should be driven from the El Callao Company. They were now driving with rock-drills, but the El Callao proposed stopping that tunnel, as they wanted to develop another part of the mine. He saw the Chairman and board of directors of the El Callao, who met him with the greatest courtesy, and did all they could to meet his views in any reasonable way. He suggested that the Callao Bis Company should join the El Callao Company in driving the tunnel. This was agreed to, and it was decided to drive the tunnel in three stages, for each of which this company would pay a proportionate amount of the expense. When this had been done the manager would know exactly where to put down the prospecting shaft, which would not cost much, and then they must have sufficient funds to carry on the works. The cost of doing this work would amount to a few thousands, but the present scheme provided for a reasonable amount of working capital. He was confident the lode was there. He fully approved of the cautious course now recommended by the board.

Mr. BLADON asked who got the benefit of the gold produced in driving?—Mr. W. BELL-DAVIES said that the El Callao Company got the benefit of that.

The CHAIRMAN said he might mention that the first of the three sections of the tunnel was now completed.

Mr. BLADON said he wished the meeting to clearly understand that only a small sum was necessary to prove where the El Callao lode entered the Callao Bis property, and assuming it did enter, then began the real work, and the necessity for the expenditure. It had been shown that nothing but a compulsory scheme for raising the money would answer. This company must not make the fundamental error which had been made by some other companies—namely, to credit the shares with more paid upon them than there ought to be, and thus not leave a sufficient amount available to be called up for the purpose of efficiently working the company. There was no doubt the company possessed a very valuable property, but it could not be developed unless the shareholders provided the directors with the necessary funds. He believed that the 40,000*l.* which it was now proposed to give the directors the right of calling would be the foundation of a great success in future.

Mr. HENDERSON could not well understand why 42,000*l.* was required now, when it was stated some time ago that only 6000*l.* would be required. He believed that a larger amount than 15*s.* per share should be credited, otherwise he believed many shareholders would not be inclined to take shares with a liability of 5*s.* per share. He suggested that the amount credited as paid up should be 17*s.* 6*d.* or 18*s.* per share.

Mr. H. KASNER did not think that 42,000*l.* was required at present. If the lode was found there would be no difficulty in raising the necessary money.

Mr. BOVELL asked whether it was a fact that a petition had been filed to wind-up the company?

The CHAIRMAN said the statement was incorrect. No petition had been filed. As regarded the debentures the interest upon them would be paid in cash.

Mr. BOVELL expressed his dissatisfaction with the report and accounts, and said he should move their rejection. He considered that the directors had not conducted the affairs of the company in a way which tended to increase the confidence of the shareholders. Mr. Bovell said he should move the rejection of the report and accounts.

The CHAIRMAN, in reply to the above and other questions, said he wished to correct a misapprehension into which Mr. Henderson seemed to have fallen. What he stated at the meeting of large shareholders was that 6000*l.* would be required to bring the Panama lode up to the El Callao boundary, and then, if the lode were out, further capital would, of course, be necessary to bring it to a paying condition. The moment it was known that this company had an uncalculated capital of 40,000*l.* it would very much strengthen the position of the company, and, as he had stated, there would simply be a call of 1*s.* per share on application, and 1*s.* per share on allotment. The meeting of large shareholders had given this scheme their unanimous support, and the directors had found amongst all the large shareholders a willingness to support this plan.

Mr. HENDERSON asked whether the consent of the debenture holders had been obtained to the exchange of the debentures for shares?—The CHAIRMAN said that at a meeting of about two-thirds of the debenture-holders there had been but few objections, and he believed that there would be no difficulty in dealing with the debenture-holders.

Mr. BLADON said that the debenture-holders, who were shareholders as well, had felt it was right to combine in order to see the scheme carried through.

The resolution for the adoption of the report and accounts was then put and carried.

The retiring directors, Mr. Charles Ronaldson and Doctor Horatio Nelson, were then re-elected.

Mr. W. H. Elliott was reappointed auditor.

The shareholders then resolved themselves into an extraordinary meeting.

The CHAIRMAN briefly pointed out that it was proposed to dissolve the old company, and start a new company with a capital of 200,000 shares of 1*l.* each, which would be apportioned as follows:—9200 of the preference shares of 1*l.* each to be issued as fully paid-up in exchange for the surrender of the first mortgage debentures; 9200 of the ordinary shares of 1*l.* each to be issued as fully paid-up, by way of bonus, to the holders of the first mortgage debentures, on the exchange of said debentures for preference shares; 169,920 ordinary shares of 1*l.* each to be issued in exchange for shares in the present company—share for share—such ordinary shares to be credited with 15*s.* paid upon each; 800 preference shares, to be held by the company in reserve; 10,874 ordinary shares, to be held by the company in reserve. He mentioned that the directors had received proxies representing about 25 shares in favour of the proposal. He moved the following resolution:—"That it has been proved to the satisfaction of this meeting, that the company cannot by reason of its liabilities continue its business, and it is advisable to wind-up the same, and accordingly that the company be wound-up voluntarily, and that Mr. Charles Ronaldson, the Chairman of the company, and James Henry Thornton, the present secretary of the company, be appointed liquidators."

Mr. ALF. RUMBALL seconded the motion.

Mr. BLADON suggested that the resolution should be divided into two parts, and there should be added to the second part, commencing with the words "that Charles Ronaldson," &c., a promise that the remuneration of the liquidators should be 150*l.*, two-thirds of which should go to Mr. Thornton, who would probably have to bear the major portion of the work.

This was agreed to, and the resolution in that form was put and carried.

The CHAIRMAN said that, as regarded the petition, to which allusion had been made, no petition had been presented, but for the protection of the interests of the shareholders it was intended to put the voluntary liquidation under the supervision of the Court of Chancery. He moved a resolution authorising this course to be taken.—Mr. ROBERTSON seconded the motion, which was put and carried.

On the motion of Mr. MACKAY, seconded by a SHAREHOLDER, a resolution was then passed, with the full consent of the directors, to the effect that the Memorandum of Association and Articles of Association be submitted to four gentlemen, with power to revise the same, especially with regard to the appointment of directors. The following gentlemen were requested to consult together on the matter:—Mr. Charles Ronaldson, Mr. Alfred Rumball, Mr. Mackay, and Mr. Chapman.

The CHAIRMAN next moved the following resolution:—"That the liquidators be, and they are hereby authorised to sell the whole of the business and property of the company to a new company, intended to be forthwith incorporated under the provisions of the Companies Acts, 1882 to 1883, as a company limited by shares, under the name of the Callao Bis Company (Limited), or such other name as may hereafter be agreed upon, with a Memorandum and Articles of Association which have already been prepared, with the privity and approval of the directors of this company, and that the draft agreement now submitted to this meeting, and expressed to be made between this company of the one part and the Callao Bis Company (Limited), of the other part (the provisions whereof are to be deemed and taken to be part of this resolution), be and the same is hereby approved, and that the liquidators be, and they are hereby authorised and directed to enter into such agreement with such new company when incorporated in the terms of the said draft, and to carry the same into effect with such modifications thereof, not being substantial variations therefrom, as may appear to the said liquidators to be advisable."—Mr. MACKAY seconded the motion.

Mr. HENDERSON again raised the point whether it was not desirable to credit the shares with a larger amount paid up, but in the end the resolution proposed by the Chairman was put and carried.

On the motion of Mr. BLADON a vote of thanks was passed to the Chairman and directors and the meeting broke up.

CORNWALL MINERAL RAILWAY.

The half-yearly meeting was held at Westminster Palace Hotel, on Saturday, Mr. ROBERT JACKSON, the Chairman, presiding.—The CHAIRMAN, proposing the adoption of the report and accounts, said the position of the company had now become a matter for congratulation. Six years ago a scheme for arranging the company's affairs was filed, and that scheme gave rise to long litigations as to priorities of stocks and other claims; but in the year 1883 many of these points of litigation having been settled, the directors filed a scheme of arrangement which had recently received the sanction of the Courts of Chancery. The great object of the scheme was to relieve the company of the debt that had been constantly accruing for arrears of interests. Under the scheme the charge for interest on debentures, debenture stocks, and rent charge stock, which had amounted to 19,186*l.* 2*s.* 9*d.* annually had been reduced to 18,511*l.* 6*s.*, which included a small amount of 13*l.* payable to certain parties holding 21,900*l.* of the first issue of 5 per cent. debenture stock who had not yet assented to the scheme, but who, it was hoped, would soon come in. The interest now payable was less instead of more than the annual payments receivable from the Great Western Railway Company. The interest on the preference stock had also been reduced from 26,250*l.* to 22,400*l.* Besides this the scheme had enabled the company to satisfy all claims of judgment creditors by the issue of the finance stock, and to arrange with the Cornwall Junction Railway in a similar way. This has only been accomplished by nearly all parties having made concessions. The company had now no debt and no liability on which interest was accruing, and the board were free to devote their attention to the development of the traffic so as to secure some dividend on the stocks that come after the debenture stock. The interest on the debenture stocks would in future be paid on the 1st October and 1st March. Though the traffic during the last half-year shows a falling off in common with all other railways, yet the traffic of May, June, and July of this year equalled the traffic of the same months last year within 15*l.* The board looked for a steady increase in the mineral traffic.

Mr. CHAMBERLAIN (deputy-Chairman) seconded the adoption of the report which was carried unanimously without discussion.

THE AMERICAN METAL MARKET.

MESSRS. MATHEWS and WEBB, ore and bullion brokers, Denver, Colorado, write under date August 19:—There is a strong feeling on all sides that trade in general is on the eve of a material improvement, and all the indications point to a confirmation of that view, even though there is an absence of buoyancy. The most favourable sign is the reduction of the surplus reserve in the New York banks of over \$3,000,000, which reduces it, however, only to \$61,633,475, an amount which exceeds that of any previous season. The clearing houses show a decrease of 17 per cent. from the same time last year which is a trifle better than it appears, on account of there having been but five business days, the Grant obsequies taking Saturday. Dry goods have shown a decided improvement, and the reports from the cotton grain crops are promising to a high degree. This latter fact is very fallaciously supposed to argue a boom in the fall. There is no doubt but that it will add largely to the wealth of the country, but it will evidently make low prices for both articles, and tend to keep down the prices of the many articles into whose use these raw materials enter. And, too, these leading staples are apt to strike the keynote that regulates many others. The treasury deal of putting \$6,000,000 of silver into active circulation has been very successfully carried out, and has brought temporary relief, but cannot prevent the ultimate collision of the two metals, nor the necessity of some fundamental changes. Railroad stocks have shown steady improvement, but Wall-street men and journals complain loudly of the absence of outside capital, and are getting very weary of mutual support. Several large offices confessedly have not paid expenses since January 1st, owing largely to the inter-member nature of the business, which in place of paying 1 per cent. pays a quarter of that amount only. We mention this because it is a good barometer of trade, and the question as to whether merchants throughout the country are making money or not.

COPPER still presents a very interesting commercial tug-of-war, and the situation is briefly this—Calumet and Hecla still have a large export contract to fill, and are by no means pressed with any surplus. The large brass companies have only three to four weeks supply bought; and are now growing anxious to make fresh contracts. Calumet and Hecla appreciate this fact, and are playing the coy and indifferent role in order to lead on the consumers. The smaller mines dare do nothing until the Calumet and Hecla show their hand. The dealers are very anxious to make a low pool price, so that a subsequent rise may show them a profit. The outside makers are watching developments eagerly, because the Lake price regulates their price, and so the net result is that all hands are resting until the show begins. Meanwhile, Lake has been slowly pounded down to \$11.15 and 11½¢ at New York under very light sales, while Electrolytic, Anchor, Balto, and Orford, with 400,000 lbs. sold, have shaded prices down from 11¢ to 10½¢, according to quality, delivery, &c. The English prices have been very steady, with best selected at 48*l.* 10*s.*, and Chili bars ranging between the extremely close limits of 43*l.* 5*s.* and 43*l.* 10*s.* The latest London circulars show that England has taken 15,000 tons of fine copper from January to August, 1885, or at double the rate of last year, and nearly quintuple that of the year before.

LEAD pursues the even tenor of its way, and a very high tenor it is too—for prices gradually harden, and show a probability of even higher rates. There seems to be a see-saw. First the West boy freely, and advances the price a peg, and then the East boy comes frightened and jump in to buy, which in turn raises limits, and causes the West to go in again, and each wave lands the price a little higher up. At New York some 800 tons have been sold at \$1.25, and even \$1.30, while at St. Louis and Chicago \$1.12½ and \$1.15 have been paid for well nigh 2000 tons. Supplies have never been known to be so short, and the expectations of sellers are no whit below \$1.50 at New York, for the busy months of the fall, when the demand outstrips all other seasons nearly two to one. The holders of round lots are so completely satisfied with the strength of their position that there is no where along the line the slightest tendency to any weakness or concession.

A SIBERIAN GOLD FIELD.

The *Sibir*, a Siberian semi-official paper, gives some interesting particulars of the community which has lately sprung up on the south of the Amoor, in the district where gold has been found in such abundance that the name Asiatic California has been given to it. The place is practically an almost inaccessible desert, without roads or paths; it is well beyond the Russian frontiers, and it would seem that until the middle of last winter the Chinese were quite ignorant that a gold mine had been found on their territory. The diggers, who are largely composed of American and Australian miners and recruits from the diamond fields, soon found the necessity of establishing order, and they have constituted a sort of democratic republic. The gold field is at present divided into 22 small districts, over each of which two elected chiefs preside, a judge and an overseer, whose duty it is to compose all differences which may arise amongst the diggers, and to inflict moderate punishments for any offences. A general President controls the body of judges and overseers; he is chosen by general suffrage from amongst the diggers, and he is charged with the task of conducting any business which may arise with the Russian or Chinese administrations of the Amoor districts. The decision of all matters of grave importance is reserved to a general assembly of all the diggers; and this assembly is empowered to expel anyone from the mines, to depose the President, and to inflict capital punishment. The President has a salary of 400 roubles a month, or about 56*l.*; the overseers and judges have salaries of half this amount. A direct tax on all places of amusement and liquor saloons constitutes the fiscal income of the commonwealth. There are about 150 such places in the district, and the receipts of each vary from 200 to 400 roubles a day. Each place pays a monthly tax of 25 roubles. A Russian official has been stationed by the authorities of Eastern Siberia in the district, and he has purchased a large quantity of the gold obtained by the diggers at the rate of 3-40 roubles the solotnik (equal to 4-3 grammes), or nearly at the rate of 45*l.* the troy pound. The amount purchased to the beginning of summer amounted to 66 poods, or over 2600 lbs. When the Chinese authorities learnt that a gold mine had been discovered within their borders they took steps to assert their rights, and sent a small detachment of troops. The diggers tried to buy them off, offering first 4 lbs., then 8 lbs. of gold. Then a force of 10,000 men was sent from Manchuria, the intention being to attack the diggers as soon as the ice began to break up on the Amoor, and they could no longer escape by the river into Russian territory. Had they done this there would have been much bloodshed, for the diggers are well armed and very determined, and as discoverers consider they have an absolute property in the diggings. Possibly Russia would have found in the confusion an excuse for intervention in a district which she must greatly regret is not within her own borders.

It is so long since the world has been excited by the rumour of a new gold field where white men could live, that it may possibly decline to be ruffled by the report of a fresh El Dorado on the banks of the Amoor. For 20 or more years vague tales have been reaching California regarding the glittering scales which were to be washed out of the mud of the great Siberian river. But the seekers after fortune had so long been tantalised by similar tales from almost every part of the Pacific, that though a few adventurers visited the region in question the Russian Government were not troubled by anything like a "rush." It would appear, nevertheless, from an account which appears in a semi-official paper, that for several months past a busy community of diggers have been at work in a place so inaccessible that until last winter the Chinese were quite unaware that the "foreign devils" were shovelling up wealth on the borders of their Empire. The miners are largely composed of Australians and Californians, with a few recruits from the South African Diamond Fields, and are already so numerous that they have established a rude sort of Commonwealth for the better government of the 22 districts into which they have divided the territory they have so quietly, and it must be allowed, so coolly annexed from the Chinese Empire. Over each district is an elected judge and overseer, controlled by a President, who conducts any business which the diggers choose to have with the Russian Administration on the other side of the river, or with that of China, which they are by no means prompt to acknowledge. The President is paid 56*l.* per month, and the overseers half that amount, while a direct tax on all places of amusement and liquor saloons constitutes the fiscal income of this rude Republic, which, with the characteristic Anglo-Saxon capacity for self-government, these orderly adventurers have established within the bounds of the Chinese Empire. What places of amusement, except for drinking and playing poker, there can be in so remote a corner of Asia it is hard to imagine. However, we are told that there are 150 such establishments in the districts, and that the receipts of each vary from 200 to 400 roubles a day. Gold seems to be abundant, over 2600 lbs. weight having been purchased last year by a Russian agent, and no doubt this summer has proved equally favourable to the operations. The only trouble is likely to be with the Chinese. When the Mandarins heard that gold had been discovered within the Imperial bounds, they sent a detachment of troops to drive away the new comers. Failing to accomplish this, a force of 10,000 men were to have been advanced against the Commonwealth as soon as the ice has broken up on the river. But as the ice has broken up long ago, and no tidings of bloodshed have reached us, we may conclude either that the news was wildly exaggerated, or that the Chinese have thought better of their resolution.

The story of these secluded gold seekers on the banks of the Amoor, forming a self-governing community out of the lawless elements which usually flock to a "rush," is as romantic as any tale which the annals of gold finding can supply. The most remarkable fact about the business is the comparative secrecy with which they have managed to go about their business. The Amoor is no doubt rather far in the outer world. But a place must be distant and the way dangerous which the determined gold digger will not reach, so long as there is anything like a probability of "pay-dirt" to reward his labours. Hence, should the report to which we have given currency not prove—as there is no reason for suspecting—a figment of the "Sibir," the Amoor Commonwealth may soon receive a large addition to its population. As for the Chinese marching "ten thousand, or any number of men, against the diggers, we may accept this as a threat which will never be carried into effect, though as the diggers, in strict accord with the law prevailing amongst them, consider the territory their own by right of discovery, differences may before long ensue. The mere fact of gold existing in Siberia has of course never been a secret. Indeed, some of the richest auriferous regions in the world exist in that fertile but little known portion of the Russian Empire. The entire eastern slope of the Oural is gold-bearing; and the other side, right on to the Altai, is quite as rich in the precious metals. At one time Yermakova, on the Yenesei, was a great centre for gold washers. Long before the discovery of the famous placers of California colossal fortunes were made here, and the stories of the hundreds of "poods" which were every year washed out, and the reckless life led by those to whom these prizes fell, still form a favourite topic of conversation in the region. But the diggings have "pettered out," and many of the men who had made fine fortunes in the palmy days have been ruined in their fruitless efforts to obtain more. The wiser of them have removed to St. Petersburg, Paris, Moscow, Omsk, or Krasnojarsk to spend their easily-earned wealth; and the place where, 40 or 50 years ago, the scenes afterwards so familiar in Australia and California were enacted, is as desert as any abandoned mining village on the Pacific slope. A few half-decayed "shanties" on which the young forest is rapidly gaining ground stand here and there on the river bank, and rotting in the coves hard by are the huge flat-bottomed arks, built of logs, which in those busy times were employed for the transport of the necessities of life from Southern Siberia to the mining centres. In this desert there were splendid billiard tables, cooks from Paris, and champagne which flowed like water. Thousands of horses are said to have filled the stables of the hastily-constructed city, while the granaries overflowed with corn and the shops with everything which money could buy. All this has so thoroughly disappeared, that it is hard to believe it ever existed. A few companies

still work the gravels. But they are not spoilt by prosperity, and the mines being provisioned by contract, there is now little room for the French *retailleurs* and the wine merchants who sold the wares of Rheims at two guineas the bottle.

Nor have the Siberian Gold Mines done much for the country. The land lies uncultivated, and manufactures cannot be successfully carried on, because, as Mr. Seeborn tells us, the peasants and workmen are continually tempted away by advanced wages, and by the opportunities for pocketing gold. At the gold mines they are overworked, each having an allotted task to perform, which must be completed, no matter how long it takes. Then, after all, many never reach home. Some die by the way, and others are robbed or murdered in the forest, for the sake of the money they have about them. Again, the business is a sore temptation to the men's honesty; for though the Russian Government prohibits the purchase or sale of gold except to public officials, a large trade in the precious metal, principally in that which has been stolen, is carried on; and considerable quantities find their way to China or are bought by the Kirghis. Altogether, the pursuit is not less demoralising in Siberia than it has proved to be in any other part of the world. California and Australia have benefited by their gold mines only in so far that they brought immigrants who, by tilling the soil, or grazing the surface with their flocks, and in other ways developing the resources of these regions, secured their permanent prosperity. The amount of gold washed out of their placers, and even that crushed out of their quartz ledges, would, were a balance-sheet struck, prove small in comparison with the money, labour, time, provisions, and clothing expended or consumed by those who did or did not obtain it. But there is no use preaching this doctrine to men afire with the tales of easily snatched wealth. From Jason, who was a digger in the Caucasus, to the latest adventurer on the Amoor, each man expects to be the lucky one. It is equally vain for any individual or any Government to try and stem the coming tide of gold seekers. When Marshall first found the scales in Captain Sutter's mill race, his employer was in doubt whether it would be wise to say anything about it. The Governor of New South Wales kept concealed as long as he could the fact that shepherds had been picking up nuggets on the "runs," and, though gold had been discovered on the Fraser river prior to the great "rush" in 1858, Governor Douglas discreetly abstained from mentioning the circumstance, lest the Fur Company, of which he was the head, should suffer by the disorganisation of business certain to ensue. Such prudence sufficed, however, for a brief period only. And the Chinese Mandarins had better make up their minds to let the "foreign devils" do their best; for unquestionably, if they are getting gold by the pound, or the ounce, or even by the pennyweight, they will have their way, be the Cousin of the Moon pleased or the contrary. Their grubbing among the Amoor gravels may not in the end do much for the country. But it may attract the attention of farmers and manufacturers to this wide region.—*Standard*.

THE MINING ASSOCIATION AND INSTITUTE OF CORNWALL.

ANNUAL EXCURSION.

Amalgamated several months since, these societies had their first annual excursion on Tuesday last. The outing was a perfect success, although there was not nearly as much talk of "bailing" matters as has previously attached to the event of the year of the Mining Institute. Happily the day proved fine. Only twice were there threats of rain. This year the number of eager excursionists was larger than ever known in the history of either society. The rendezvous was the seat of the noble President, Lord Robartes. Travelling by the first train, some 70 ladies and gentlemen alighted at Lostwithiel, and, in five carriages specially provided from Bodmin, first proceeded to inspect Restormel Castle. This is a castle with a history, but just now it is a castle in name only. It is supposed to have been built at the end of the 11th century, and, since then, for centuries, to have been the property of the Dukes of Cornwall. Mr. R. H. Williams, C.E., of Wheal Eliza, gave a short history of the place, and the fact that particularly interested us in his recital was this:—That Lostwithiel, within a few hundred yards of the castle, in the old days, was the only town permitted to trade in tin, and that it was found at one time that Bodmin and Truro illicitly followed the practice; that there was an appeal to Parliament. But Mr. Williams could not, unfortunately, tell the result of this appeal. From Restormel a departure was made for the Stockwork Mine which rejoices in the name of Malberry. This is situated in Lanivet. The conditions under which this mine is worked greatly surprised the visitors. Here there were no shafts. The ground was simply bodily removed, and the result was a vast, yawning hole. Hence a move was made for Lanhydrock, via Bodmin. Arrived at Lord Falmouth's estate, the excursionists were heartily welcomed by both his lordship and her ladyship. A most excellent luncheon was provided, and among those present we noticed Lord and Lady Robartes; Mr. A. Pendarves Vivian, M.P.; Mr. T. Simon Bolitho, Penzance; Mr. R. J. Frecheville, Her Majesty's Inspector of Mines; Captain and Mrs. Josiah Thomas, Dolcoath; the Rev. J. Every, Vicar of Lanhydrock; Dr. H. Harris, Redruth; Messrs. W. Teague, Treleise; F. W. Michell, Redruth; Charles Tyack; J. H. Bowden; John Hoskins, W. Hambly, late Wheal Uny; R. H. Williams, C.E., Wheal Eliza; W. T. White, Wheal Agar; T. Pryor, purser, Wheal Pevor and West Seton; W. Tregay; W. M. Grylls, Falmouth; N. Trestrail, jun.; R. S. Teague, purser, of Pedn-an-drea; S. Davey; Charles Bishop, East Pool; John Penhale, East Pool; G. T. Richards, Duchy Agent; W. Huthnance, Gwinear; S. Bennetts, Blue Hills; J. Hitchens, St. Agnes; T. Hutchinson; C. Craze; South Frances; W. Pascoe, South Crofty; A. Lanyon, Redruth; Pearce Jenkin; J. W. Wilkinson, Kennall Vale Gunpowder Company; W. Teague, jun., Tincroft and Carn Brea; J. Nicholas, West Basset; Cornelius Bowden; W. Lidgley; J. W. Towan, Carharrack; W. C. Tyack; J. J. Beringer, county analyst; W. Rich, South Condurrow; W. Rich, jun., secretary; M. Loam Liskeard; C. Thomas, Cook's Kitchen; F. Thomas, Dolcoath; J. Wickett; T. Quentrell, East Lovell; H. King, South Condurrow; H. G. Halse, Trevarth; F. W. Dabb; R. Symons; and N. Bryant, St. Agnes.

After an excellent luncheon, the loyal toasts were given. To the toast of "The Army, Navy, and Reserve Forces," Lieut.-Col. VIVIAN, M.P., responded, speaking highly of the last-named service.

Captain TEAGUE, sen., who proposed "The Two Houses of Parliament," remarked that certain wild people would like to separate the two institutions, but in Mr. Vivian they had a gentleman who would maintain the integrity of those institutions. The name of Lord Robartes was a household one throughout the county. (Applause.)

Lord ROBARTES, in reply, thought they might do well to enquire as to the condition of the two Houses. The House of Lords had little work to do; the House of Commons had a great deal, and if something could be done whereby the work could be equalised he felt it would be a very good thing. (Applause.)

Mr. PENDARVES VIVIAN, M.P., having said they had tried to do as much as they could in the last five years, but that he thought even less would be done with the class of men they were to have in the new Parliament, went on to say that there were many things which required legislation, and in that category was the question of mine leases. He said: I do not wish to go into the matter at any length, but I cannot help feeling that in forming legislation—mining legislation—in the future something of the same course should be adopted as in the past; that a county meeting of the mining community should settle or what is required—should settle on what should be done. I see this has answered very well in the past to get representative from different sections of the mining community to sketch out what is required for their benefit. I cannot help thinking there is no reason whatever to depart from that old rule. (Applause.) As regards myself, you know my own views upon mining leases pretty well. You must bear in mind that we must regard the rights of everybody concerned—(applause)—that we must do justice to nobody. It is for us to consider what would be a just and fair measure, and to endeavour to get the House of Commons to endorse it, and to take it into their favourable consideration. (Applause.) If the House of Commons once imagined that a measure is unfair or unjust—I do not care what the measure is, who has charge of the Bill—

then it is of no more value than the paper upon which it is written. I think the principle sanctioned by Parliament in the Agricultural Holdings Act, and in the Irish Land Act, is the right principle for us to adopt if we can possibly do so. I mean the principle of compensation for unexhausted improvements. I refer to the question of mine leases. By adopting this principle at the termination of a lease we should be doing no injustice to anyone, and I believe the principle will commend itself to the House of Commons. (Hear, hear.) I remember some 16 years ago, when considering the matter of legislation on the Stannaries Act, at county meetings, we took into consideration a question which affected the miner. We were anxious to secure to the miner, in the event of the stopping of the mine, the whole wages due to him. In consequence of the feelings of the House of Commons then we were only able to secure the wages of the first three months, and we were asked to wait until the liquidators should finish the affairs of the mine. I think it is right to secure to the working miner the whole wages due. I know perfectly well, from having been brought in contact with miners for the past 30 years, that it is of the utmost importance to the working miner that he should feel that the wages he was earning were secured to him and his family, and I am perfectly certain no gentleman would wish to do otherwise. I hope much the time will come when a county meeting may be called together, and sketch out the requirements of the mining community, and that we may—whoever has the honour of doing so—be able to convince the House of Commons that the proposals are just and fair, and are what are required by the mining community. (Hear, hear.) I consider it a great honour to belong to the House of Commons, and so long as I have that honour I shall do my best to represent any constituency I may sit for in a proper manner. (Applause.)

Capt. JOSIAH THOMAS proposed "Success to the Mining Association and Institute of Cornwall, coupled with the health of our most worthy and noble President, Lord Robartes." (Applause.) He hoped they had all enjoyed themselves that day. Having expressed his surprise that the Mulberry Mine, which they had visited, could return a profit on low-produce stuff of some 5 or 6 lbs. of tin to the ton, and remarked that some clever members of the company had suggested politics in the Mining Division would send some of them to the County Asylum, for breaches of the Corrupt Practices Act, others to the County Gaol, both of which institutions were passed, Capt. Thomas said:—As to the Mining Association and Institute, I may say the Mining Association is put first because, I suppose, it was the first institution established. I well remember when that Association came into existence, and I do not think the promoters of it acted in the most prudent way, to say the least of it, they commenced by severely criticising the mine agents, saying they were a most ignorant set of men. (Laughter.) My father and others did not like to be told by parsons and doctors that they were ignorant, and thus agents who might be of use to the Association refrained from joining. This Association, however, went on and prospered, and I believe it has done a great deal of good to the people. I only wish I had the advantages offered me which this Association has offered. I hope the young men will add practice to theory—add to their stock of information. (Applause.) The Mining Institute was formed some seven or eight years since, for the purpose of friendly intercourse between mine agents. I believe it has been the means of doing a vast amount of good. There was a time in Cornwall when the agents did not know each other so well as now. They might know the machinery, but since this Institute has been established they have met together more frequently, and in consequence mining machinery has improved. I do not think I should be far wrong in saying that mines can now be worked at a depth of 400 fathoms as cheaply as at 200 fathoms 25 years ago. (Hear, hear.) The two associations have lately been amalgamated, and I see no reason why they may not work together most harmoniously, and why they should not be more beneficial than when separated. Of Lord Robartes I can only say that if all the lords had acted in the same liberal manner as the present lord, and his late respected father I—say if we had asked as they have acted—not one word would have been said from one end of the county to the other of any legislation being necessary in mining matters. (Applause.) I do not say this in the presence of Lord Robartes; I have said it many months since. (Applause.)

Lord ROBARTES: I thank you very much for the cordial way in which you have drunk my health. I can assure you it has given me very great pleasure to see you here to-day, more especially in the honourable position in which you have placed me with regard to your Association. I was only sorry last winter I was prevented from attending your meeting, but I hope to have another opportunity of doing so. (Cheers.) I do not propose to speak to you at length on mining matters, personally I have slight acquaintance with them. Had time permitted I should have been glad to have heard remarks from those well qualified to speak on such subjects. I wish that the interest of mining throughout Cornwall could be said to be more a cause of congratulation than it is now. I believe here and there there is not wanting evidences of a better state of things. I think a better condition of affairs will come. (Hear, hear.) I feel sure that associations of this kind do good, and the amalgamation of these two associations tends to cement the good feeling which exists between the members. I am personally glad it has fallen to our share this year to have the opportunity of entertaining the members here. (Hear, hear.)

Captain TEAGUE, sen.: I was much delighted with the remarks made by Mr. Vivian with regard to future legislation for mine leases. For his guidance I may go so far as this—that there is a sketch already drawn, and was awaiting the sanction of this meeting before it was put into circulation. Continuing, Captain Teague said he hoped a great deal of good would come out of the movement. They would "let dead dogs die," and, therefore, the least said about the Stannaries Act and the Metalliferous Mines Act the better. These Acts had not been carried out as they should have been. There was a good deal said about the protection of the working miner. He challenged contradiction when he said there was not a mine agent in that room who would allow a miner in his employ to be trampled upon or unfairly dealt with. Whatever might be the tendency of certain classes they must take care of the working miner. How were they to care for him? They could only care for him by seeing that at the end of the four weeks he received his money. We do not fly away to the lord, or anybody else, we look to the adventurers to find the money, and if they are not prepared woe to the working miner. They were prepared for a county meeting. They insist, as miners, legislation was necessary. Now, we want to know how to get about it, and to fix on a certain principle which should be embodied in a Bill, and brought before the House of Commons, and not be rejected. (Applause.) They had been reminded by Mr. Vivian that the Bill must not be drawn in a one-sided way. The miners did not wish this. They only wanted that which was fair and equitable among all parties. (Applause.)

Mr. FIVEVIAN, M.P., gave the toast of "The Ladies," to which Mr. FRECHEVILLE happily replied.

Captain RICH referred to the Chairman as one of God's own noblemen, and the name of Robartes would be honoured so long as a Cornishman lived. He was one of few landlords who could take the position of their President. (Applause.)

Mr. T. S. BOLITHO (Penzance), who entered late and was loudly cheered, said he had an interest in everything in the mining way. Born in the same year as his lordship's father, he could say he had known Lord Robartes from his earliest years. He entertained the greatest respect for the memory of the late lord, and for his liberal acts. Look at the Miners' Hospital at Redruth. (Applause.) That was a very great work, and did him honour. A more liberal landlord than the present lord was not to be found. He was pleased to see there his friend, Mr. Vivian. (Applause.) There might be differences of opinion among them, but he did hope—he sincerely trusted—that the cause of Liberalism was not to suffer because of any little difference of opinion that may have arisen. He hoped all would strive to put an end to the feeling that unhappily existed, and that North-Western Cornwall would continue to send a Liberal to the House of Commons. (Applause.)

Lord ROBARTES having said a few words, the company separated, and upon departing, soon after, gave hearty cheers for Lord and Lady Robartes, and family.

BRITISH MINES.

HEALEYFIELD. John Trelease, August 23: I am pleased to inform you that our slopes are looking about as usual, and the foremost rise north looks more promising than the others. The weather is not so good as it was a few days ago, but the clouds are clearing and the sun is shining brightly. The water is running through the lode. I welcome this change, and am of the opinion, by present indications, that we will get an early improvement for lead ore at this point. The engineers are progressing very favourably with the erection of new engine. The boiler is nearly finished, and the steam pipes approaching completion. I have men busily employed putting up the new engine, and the water pump, and the new places in new working barrel. We are doing our utmost to get forward the work, to be in readiness to start the sinking when the engine is ready. We

North at the 122 to four men, at 74. per fathom; we have 3 or 4 fms. more to
drive to reach the lode. No change nor setting with the tributaries this month.

possible speed, and satisfactory progress is being made with the cleaning of the shaft, &c. We can see the back of a plat, and can also see a level outside

INSURANCE SHARES have, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance British and Foreign, 37; City of London Marine, 1½; Commercial Union, 15½ to 15¾; Eagle, 6¼; Globe, 17½; Guardian Fire, 3½ to 59½; Indemnity Marine, 14¼ to 14½; London and Provincial Marine, 20½ to 210; Phoenix, 209 to 210; Rock, 7½; Royal Exchange, 393; Royal, 32½ to 32¾; Universal Marine, 8½. Insurances very little changed.

C. PASS AND SON, BRISTOL,
ARE BUYERS OF
**LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,
ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c.
and DROSS or ORES containing
COPPER, LEAD, AND ANTIMONY.**

GEO. G. BLACKWELL,
26, CHAPEL STREET, LIVERPOOL,
HANDLES
**MANGANESE, BARYTES, SPARS, and ALL ORES on SALE
or PURCHASE.**

HENRY WIGGIN AND CO.,
(LATE EVANS AND ASKIN),
NICKEL AND COBALT REFINERS,
BIRMINGHAM.

QUIRK, BARTON AND CO.,
61, GRACECHURCH STREET, LONDON, E.C.,
ARE BUYERS OF
**LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS, &c.,
AND DROSS OR ORES CONTAINING LEAD.**

ESTABLISHED 1806.—THIRTY YEARS IN CORNWALL.
SAMUEL JAMES,
STOCK BROKER AND MINING SHARE DEALER,
14, ANGEL COURT, LONDON, E.C.
Member of the Redruth Mining Exchange.

Those who wish to buy or sell any mining shares should consult Mr. JAMES. Mr. J. devotes his entire attention to home and foreign mining, and places his special information at the disposal of his clients. That mining offers undoubted advantages for quick returns no one can deny. Look at the enormous sums of money paid in dividends by home and foreign mines. A large number of wealthy families owe their present proud positions to adventuring in LEGITIMATE MINES. With a better price for metals many of the smaller priced shares would immediately advance some hundreds per cent.

TREVAUNANCE AND MONTANA SHOULD BE BOUGHT AT ONCE.
There are many mines worth attention, as proceedings of recent share holders' meetings prove beyond doubt. During the last 40 years there has not such opportunity presented itself as the present for investment in British mines. Metals are certain to advance. In well-informed circles no doubt is entertained on this point. Buyers must not further delay orders.
See Selected List published by S. JAMES, 14, Angel-court, London, E.C.

SPECIAL BUSINESS in the following or part—
20 Bedford United, 11s
27 Carn Camborne, 4s.
20 Devon Con., 4s.
100 Devon Friendship, 1s
30 Drakeville, 3s. 6d.
20 East Blue Hills, 3s.
20 Ecton, 15s.
50 Frongoch, 7s. 6d.
10 Great Lacey, 49s.
10 Gunlake (O.K.), 6s.
50 Great Holway.
50 Home Mines Trst., 15s.
10 Killisfirth, 14s. 6d.
20 Kitty St. Agnes, 11s. 9
20 Leadhills, 4s.
75 New Kitty, 15s. 6d.
20 New Wt. Carleton, 2s. 3
30 Phoenix United, 33s. 6
20 Polberro, 42s. 6d.
50 Prince of Wales 7s. 9
100 Parys Copper, 3d.
10 Roman Grav., 4s. 10
150 South Caradon, wtd.
10 So. Condurrow, 28s. 7d.
50 South Darren, 3s. 6d.
10 South France, 49s. 15
20 Trevaunance, 44s.
20 Van, 31s. 3d.
10 West Kitty, 47s. 6d.
10 Wheat Basset, 26s. 12 6
25 Wheel Crebor, 19s.
S. JAMES can buy or sell any of the above shares. Correspondence invited. Trustees, executors, and others will find their duties considerably lightened by submitting schedule of shares held to Mr. JAMES, who will return the same by next post with market values attached.
Orders by letter or telegram promptly attended to. Speculative accounts not opened on any terms whatever. Send for selected list of Mines. CLOSING PRICES issued every Tuesday and Friday.
BANKERS: IMPERIAL BANK, Lothbury, E.C.

TRUST AND MORTGAGE INVESTMENTS.
PARTICULARS OF SOUND 5 TO 10 PER CENT. DIVIDEND-PAYING STOCKS.
MONTHLY (SEPTEMBER) RESUME OF THE STOCK MARKETS.
BRITISH, COLONIAL, AND GENERAL INVESTMENT TRUST
(Limited).—While we are in favour of investments in Colonial Loans as a means of obtaining a fair return on capital, we more confidently recommend an investment in the Shares of the above Trust, and for the following reasons:—
An Investor in the Colonial Bonds—more especially of the older issues—can obtain a rate of dividend averaging (say) 4½ to 4¾ per cent.; but as these loans are all redeemable in a certain term of years at par, he must deduct so much from this rate of interest to make allowance for the premium he pays in the first instance—in other words, the sinking fund necessary to equalise the premium varies from ¼ to ½ per cent. per annum.
Against this we set a similar investment in the Shares of this Trust, and point out the advantages to be gained by so doing. This Trust deals largely in these Bonds, applying for considerable amounts in the new issues, and thereby adding to their incomes from the premiums obtainable on an allotment.
The general business of the Trust includes all the most lucrative, and at the same time safest, forms of security, and while devoting attention to the raising of good profits, the management discriminates between what is good and what is bad, when tempted by the prospect of high interest.
The scope offered is so large that there is never anything like stagnation in the business of the Trust, and the Capital is kept fully and remuneratively employed over a large and varied field. The Securities dealt in are, as a rule, as safe as Colonial Bonds, and being all dividend-paying Securities, it requires only a close attention to the various markets in which the Trust is interested, to enable the addition to the current dividends to be earned, and that the interests of the Trust are in good and careful keeping has been proved by its past record of Dividends and Bonuses. This will be continued we make no doubt, and as we anticipate a continuance of the present improving condition of the Money and Stock Markets, and we may say of trade generally, we fully expect to see this Trust take a foremost position among the Securities of the day.
Investors, therefore, so far as security goes, are equally safe as with an investment in Colonial Bonds, but with the frequent turn over of the capital the return obtained is more than 10 per cent. per annum. The last dividend paid by the Trust was at the rate of 10 per cent. per annum, with a bonus of 2 per cent., and nothing less than 10 per cent. has ever been paid.
The unfailing regularity of the dividends, which are payable quarterly, and the freedom from the anxiety connected with market fluctuations, are to investors strong inducements.
We are convinced that if the constitution and working of these Trusts were better understood and appreciated the demand for the shares would be increased. A large capitalist can subdivide his capital in such a manner as to make the loss of one of his Securities a matter of not much consequence, but to the investor possessed of moderate means the opportunity of dividing his capital is extremely limited. To investors who come under this description, as well as to large capitalists, a Company such as the BRITISH, COLONIAL, AND GENERAL INVESTMENT TRUST confidently appeals, and offers the advantages which belong to the large capitalist. With a combination of capital almost anything is possible, and the results of the working of the Trust are the best arguments in favour of our assertions.
The recent improvement in Stock Exchange business has been all in favour of a Company such as this, as its investments being of a general nature an all round benefit is obtained on its Securities and purchases. The price of the Shares is 25s. 9d. for each fully paid 25 Share, with no further liability, with a quarter's dividend due this month, and we recommend them to the attention of investors generally.
It should be noted that, since we began to recommend these Trust Securities, the value of nearly all descriptions has steadily improved, owing to the growing demand for investments of this class, and we are sure that this improvement and appreciation will continue, so that the present is a most favourable opportunity for securing an interest in a safe and progressive investment.
Extract from Circular 448, containing full particulars of this and other similar Investments post free on application.
ABBOTT, PAGE, AND CO.,
STOCKBROKERS,
42, POULTRY, LONDON, E.C.

MINING OFFICES, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.
ESTABLISHED UPWARDS OF FORTY YEARS.
Messrs. WATSON BROTHERS, in referring to their public Circular in the *Mining Journal*, would also observe that they BUY and SELL SHARES at the net market prices of the day in all well-established and respectable Mining Companies; also, in English and Foreign Funds, Railway Stocks, &c.

JOHN RISLEY, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
38, CORNHILL, LONDON, E.C.
ESTABLISHED 1860.
BANKERS: LONDON AND WESTMINSTER, Lothbury, E.C.

Messrs. ENDEAN AND CO., STOCK AND SHARE DEALERS, 45, GRACECHURCH STREET, LONDON, E.C.
ESTABLISHED 1862.
BANKERS: LONDON AND WESTMINSTER, Lothbury, E.C.

MR. W. TREGELLAS, 40, BISHOPSGATE STREET WITHIN, E.C.
Deals in all descriptions of STOCKS and SHARES at close market prices.
W. TREGELLAS has special business in SANTA BARBARA and LISBON-BERLYN GOLD MINES.

CHARLES J. SIMS, STOCK AND SHARE DEALER, 3, UNION COURT, OLD BROAD STREET, LONDON, E.C.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and in the MATTER of the OWEN VEAN and TREGURTHA DOWNS MINES (Limited).
The CREDITORS of the above-named company are required, on or before the 5th day of October, 1885, to SEND THEIR NAMES and ADDRESSES and the particulars of the DEBTS or CLAIMS, and the names and addresses of their Solicitors if any, to FRANCIS COOPER, of No. 14, George-street, Mansion-house, in the City of London, Chartered Accountant, the Liquidator of the said company, and, if so required, by notice in writing from the said Liquidator, are by their Solicitors, to come in and prove their said debts or claims at such time and place, as shall be specified in such notice; or, in default thereof, they will be peremptorily EXCLUDED from the BENEFIT of any DISTRIBUTION made before such debts are proved.
SNELL, SON, and GREENIP, 1 and 2, George-street, Mansion House, London, E.C., Solicitors for the Liquidator.
Dated this 3rd day of September, 1885.

THE PENEGARREG SILVER-LEAD MINING COMPANY'S
SHARES should be PURCHASED. They will go to a very high premium, and continuous Dividends appear to be certain. Mr. Thomas Collingwood Kitto, the well-known mining engineer and writer on the Transvaal Gold Fields, Kimberley Diamond Mines, &c., recently inspected the Mine, and writes as follows:—
"You have a first-class property, you are steadily opening up your reserves, and when you have erected the machinery which I recommend, you will have one of the best silver-lead mines in Wales."
In order to treat this ore successfully, you should have from ten to a dozen puddlers, or disintegrators, with, say, half a dozen jiggers, and you could at once return 50 tons per month from this flocon lode, and at the same time a full 2½ per cent. per month to your reserves. You will, therefore, see that you have a prize of no mean order already laid open, requiring only a little inexpensive machinery to convert it into actual money and profits.
"I shall be prepared to take the entire management of the property without any remuneration, save a percentage on the profits, and this is an offer that I would not make with regard to any mine I have inspected during the last three years, and they have been over 50. I may add that the future of the mine in depth is assured."
Mr. Kitto's full report can be had on application to Messrs. H. R. LEWIS and CO., Bartholomew House, Bank, London.

SHARES in a first-class PORTLAND CEMENT COMPANY for SALE.—Worth the attention of cautious investors, who require good dividends.
Messrs. H. R. LEWIS and CO., Bartholomew House, Bank, London.

Notices to Correspondents.

Letters containing Correspondence and all other Contributions should be addressed to "The Editor." Rejected matter cannot be returned. Correspondents are requested to write on one side of the paper only.

Communications relating to Advertisements, Subscriptions, or applications for copies of the *Mining Journal* should be addressed to "The Publisher." The Annual Subscription to the *Mining Journal* is £1 4s., post free.

THE FOLLOWING ARE THE RATES CHARGED FOR ADVERTISEMENTS
Government Notices, Companies' Announcements, Auction Sales, &c. ONE SHILLING PER LINE.
Lowest charge 7s. 6d.
Prospectuses: Per Column £12 12 0
Per Page 30 0 0
Situations Wanted, &c. EIGHTPENCE PER LINE.
Lowest charge 4s.

TRADE ADVERTISEMENTS.

Single Column. 13 times. 52 times.
One inch 5s. 6d. 4s.
Across two columns, twice the above.

Cheques should be payable to the Proprietors, *Mining Journal*, and crossed, London and Westminster Bank.

THE MINING JOURNAL, Railway and Commercial Gazette,

LONDON, SEPTEMBER 5, 1885.

THE COPPER TRADE.

The unprecedentedly low value of copper has recently attracted the attention of the public, and features connected with the market have been freely expressed in the columns of the *Times*. The first point which attracts attention is the heavy and ever increasing supply, and to this cause alone must be attributed the reduced value. The following figures will show the total supplies for the 12 months ending on the 31st August of the named years—

1881	.....Tons	74,021
1882	.....	84,208
1883	.....	91,231
1884	.....	98,603
1885	.....	117,065

This excessive quantity arises chiefly from an annual increase in the American supply, and reference to statistics will show that the supply from that country has for every year for the last few years doubled itself, so that during the last 12 months we have had a total supply from North America of about 35,000 tons. At the same time there seems every probability that at least the same rate of supply will be maintained, because most of the largest mines are under contract to continue to supply in heavy quantities, and to quote the remarks on this question from America, which were published in last week's *Mining Journal*, "the Anaconda and the Parrott Companies, and the Calumet and Hecla are actually increasing, while the Tamarack is rich in promises." It is a fact that the low prices have necessitated the closing of a few mines there as well as elsewhere, but others have so materially increased their output that the total supplies, as we have already seen, have vastly increased. The Montana district is an entirely new source for the supply of copper, and it is only during the last three or four years that copper has been brought from those parts in any quantity. During that time the railways have been extended to the principal mines, the means of transit have been economised, and these various mines which have done so much in their infancy continue to vastly increase their output as they rapidly develop. To remedy the evils arising from the excessive American supply the system of "pooling" has been suggested, but it is very questionable whether such a combination could be arranged amongst the various proprietors of the different mines,

and at any rate for the present it could not be carried out on account of the existing contracts to maintain the supplies for lengthened periods. Besides very fair profits are secured for the shareholders of the principal mines even at the reduced prices, and therefore it is not likely that they will be very ready to restrict their output chiefly for the benefit of copper holders in this country, or to enable smaller mines to compete with them. But it is not only from America that supplies have increased. The depression in the market is intensified from an increase in supply from Spain during the last five or six years of about 10,000 tons, and this year there has been nearly 2000 tons more copper imported from Australia than there was during the same time of 1884, and the stocks here of Chili produce are rapidly increasing, particularly of Chili bars. It is a noteworthy fact that the reduced prices do not in any way check the supply for Chili bars, arising, no doubt, in some measure from the reduced rate of Exchange, but which is proved by the Chili charters for the last half of August which were heavy amounting to 2100 tons. The future rate of Exchange is looked forward to by copper holders with some anxiety, and it is possible it may produce a prejudicial influence upon the market, and that in two ways—first, by increasing the supply of Chili copper, and, secondly, if silver becomes lower, by interfering with the Indian demand from reduced limits. To sum up the whole matter of supply, we can but state that during the last year there has been a total supply, over and above the actual requirements of the trade, of fully 14,000 tons. Comparisons have been drawn showing the low prices now ruling with those with corresponding periods; but the reduction has not been out of proportion to the increase of supply, the ratio during the last year being about 17s. per ton fall for every thousand tons increase in actual stocks. With regard to demand there does not appear to be an immediate prospect of increase, nor is it likely there will be any special falling off, although during the last 12 months the deliveries have been 2315 tons less than they were in the previous 12 months. Nevertheless, this is not a matter which need call for any special notice, since we have been passing through an exceptionally bad time for trade in general, and further the deliveries for the year ending 31st August, 1884, were very much larger than they had ever been before. Comment has been made upon reducing the retail value of copper in order to stimulate an increased demand. Undoubtedly this would be about the best thing that could be done. There is now such a deluge of copper, and wholesale prices have been so materially reduced, that the public should be placed in a position to reap the benefit. Then a fresh outlet for the consumption of copper would be secured, and an opportunity afforded to consume in great measure the enormous supplies as they come forward. Then instead of the rapidly increasing stocks which now so greatly depress the market there would be the chance, at any rate, of supply and demand being regulated more equally.

The advisability of forcing a revival by establishing a speculative demand has been urged, but perhaps there is nothing which could be more injurious to the trade, simply because it would be an unnatural influence, and to force that which is contrary to the natural course of the market must inevitably be attended with most serious results, leading ultimately to a heavier decline. If the supplies are excessive at the reduced prices, how much more would they likely be so with any advance, and again, if the bona fide demand is too limited at current low values, is it not probable it would be still more so if values were enhanced? To encourage a legitimate demand is one thing, but to start a speculative enquiry is quite another. The one would be attended with beneficial results, and the other with injurious effects.

MINING LEGISLATION FOR CORNWALL.

"I can only say if all the lords had acted in the same liberal manner as the present Lord ROBERTS, and his late respected father—I say if all had acted as they have acted, not one word would have been said from one end of this county to the other of any legislation being necessary in mining matters. I do not say this only in the presence of Lord ROBERTS. I have said it many months since." These were the words of Capt. JOSIAH THOMAS, one of the most representative mining men of the county, in referring to Lord ROBERTS, President of the Mining Association and Institute of Cornwall, at the annual excursion of those societies, on Tuesday. This was a compliment sincerely conceived, happily given, and well received by a large company, and that Lord ROBERTS is the most popular mining landlord in the county none doubts. What has been the recent action in the case of the renewal of the Tincroft lease of Lord ROBERTS? He gave a lease on terms before unknown to Cornish mining. And what was said of his lordship's agreement? He had general commendation. The shareholders received the conditions of the lease with applause. And this was before the Mining Division was formed, before it was suggested, before Mr. CONYBEARE applied with Radical proposals for mine lease reform, before Mr. VIVIAN, M.P., spoke very definitely on the subject. But now all politicians in the Mining Division of the Liberal creed are contending for radical reform in mine leases. Would this contention have come so forcibly but for the fact that Mr. CONYBEARE has so strongly insisted upon its importance? We think not. At any rate, we can only conceive that but for the opposition offered in the Mining Division, such radical reforms as now insisted upon would not have been suggested. Mr. CONYBEARE is, of course, extreme, and Mr. VIVIAN goes so far as to say he would insist on the principle of the Irish Land Act being applied to Cornish mines' leases. We hope it will.

Messrs. VIVIAN, YOUNGER, and BOND write under date September 3:—At the Milton sale in Batavia on the 29th ult. 410,000 pounds sold at an average of 11.51-57 per pound, equal to about 954. 15s. laid down in Holland, sugar tin, after receding to 90, advanced to 94. 10s., but rapidly fell again to 92. 5s. which is the closing price. The August shipments are advised as follows:—Straits to London 350 tons, and 300 tons to America; from Australia 750 tons to London; to America 150 tons; from London and Holland to America 710 tons. The deliveries for the month from London warehouses were 927 tons; from Holland 654 tons.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
August 31	Frongoch	20	£ 7 1 6	Adam Eytan.
September 1	Faxdale	120	9 7 6	Walker, Parker, & Co.
	Great Holway	39	9 12 0	ditto

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
September 1	Comystwyth	100	£ 2 17 0	J. F. Kimmel.
	Great Holway	40	3 4 6	Swansea Vale Co.
	ditto	15	2 2 6	ditto

BLACK TIN.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
August 31	Phoenix United	31	£51 7 6	Tamar Company.

METAL MARKET--LONDON, SEPTEMBER 4, 1885.

IRON.		£. s. d.		TIN.		£. s. d.	
Fig. cast, f.o.b. Clyde...	2 2 5	—	—	English, ingot, f.o.b. ...	93 0 0	—	—
" Scotch pig. No. 1 Garsite.	2 6 6	—	—	" bars	94 0 0	—	—
" " Coltness	2 6 6	—	—	" refined	95 0 0	—	—
" " Clyde	2 6 0	—	—	Australian	92 2 6	—	—
" " Govan	2 10	—	—	Banca	nom.	—	—
Bars Welsh, f.o.b. Wales	4 10 0	—	—	Straits	92 0 0	—	—
" in London	5 0 0	—	—	COPPER.			
" Stafford	5 15 0	6 0 0	—	Tough cake and ingot.	45 10 0	48 3 0	—
" in Tyne or Tees	4 15 0	—	—	Best selected	47 3 0	48 0 0	—
" Swedish, London...	9 0 0	9 10 0	—	Sheets and sheathing	51 15 0	55 0 0	—
" " " "	4 10 0	—	—	Flat Bottoms	58 0 0	—	—
Rails, Welsh, at works	6 10 3	6 15 0	—	Wallaroo	nom.	—	—
Sheets, in London	6 10 3	6 0 0	—	Burra, or P.O.C.	52 0 0	—	—
Plates, ship, in London	5 17 6	6 0 0	—	Other brands	nom.	50 0 0	53 0 0
Hoops in London	5 15 0	6 0 0	—	Chill bars	42 12 6	42 15 0	—
Nail rods, in London	5 15 0	6 0 0	—	QUICKSILVER.			
STEEL.				Flasks, 75 lbs., war.	5 17 6	—	—
English spring	12 0 0	18 0 0	—	PHOSPHOR BRONZE.			
" cast	30 0 0	45 0 0	—	Alloys H	£98 0 0	—	—
Swedish, keg	12 0 0	—	—	" V	105 0 0	—	—
" fig. ham.	12 10 0	—	—	" VI. and VII.	120 0 0	—	—
Rails at works	4 15 0	5 0 0	—	" XI	96 0 0	—	—
" Light, at works	5 15 0	6 0 0	—	" Duro A, Duro B ..	93 0 0	—	—
LEAD.				ANTIMONY	£36 10 0	£37 3 0	—
English pig	12 0 0	—	—	BRASS.			
" L.B.	12 5 0	—	—	Wire	5½d. - 5½d.	—	—
" W.B.	12 10 0	—	—	Fishes	7 - 7½	—	—
sheet and bar.	13 2 6	—	—	Sheets	8 - 8½d.	—	—
pipe	13 12 6	—	—	Yel. met. sheath. & sheets	4½ - 4½	—	—
red	14 10 0	15 0 0	—	T. P.			
white	16 0 0	19 0 0	—	Charcoal, 1st quality ..	3 12 0	0 19 0	—
patent shot	15 15 0	—	—	" 2nd quality	0 17 0	0 18 0	—
Spanish	11 10 0	11 12 6	—	Coke, 1st quality	0 15 0	0 16 0	—
SPELTEN.				" 2nd quality	0 14 3 0	0 15 0	—
Belgian ordinary brands	14 7 6	14 10 0	—	Canada, Staff. or Glia.	1 17 6	2 2 6	—
" special brands	14 10 0	14 12 6	—	at Liverpool	—	—	—
English Swansea	14 10 0	14 12 6	—				
Sheffield	18 15 0	17 2 6	—				

At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 5s. per box more than 10 quoted above, and add 5s. for each X. Tarn-plates 2s. per box below tin-plates of similar brands.

With the exception of Scotch pig-iron, which has been fairly active, our markets have been for the most part quiet, and business at the fore part of the week was transacted at reduced prices. Yesterday evening, however, there was a general slight recovery, owing, no doubt, to the advance in the Glasgow Warrant Market, it being argued, and not without reason, that if iron were to materially improve, other metals would, in all probability, quickly follow suit. Iron yesterday may have stiffened from the influence produced from a leader in the *Times* having brought before the public some of the most favourable features connected with that market. But surely this is not a time for artificially enhancing the value of metals. No possible good can arise therefrom, and much harm to the trade in general may follow. There is the fact that during August a positive increase took place in public stocks in Glasgow and Middlesbrough alone of no less than 25,000 tons. Copper stocks increased by about 1600 tons, and tin stocks increased by nearly 150 tons. That is the result of the month's business that has just passed, and to establish an advance upon such advices is to base it upon a very feeble foundation. The little rise may attract a few operators, and thus cause a certain amount of temporary vitality to the market, but there is positively nothing to cause any permanent improvement yet awhile. Speculation will often do good, and materially help to restore prices when they have been kept down, say, from a depression merely in demand, but it will do no good when supplies are excessive, and so very much beyond actual requirements. When a market is depressed from too great a supply their speculation tends to increase that supply, and, consequently, checks or prevents any restoration of prices, instead of giving the desired relief to the market. For a time it may have a beneficial influence, but the ultimate result is only to cause a still greater reaction, to produce a most unhealthy feeling, and to generally disorganise the markets. Excessive speculation just now therefore could not be viewed favourably, nor is it likely to be carried to extremes, because there are numerous holders most anxious to rid themselves of their stocks upon the smallest advance, and the more prices improve the greater will be the realisations, while still further the great increase in stocks to which we have made reference will deter speculators from buying beyond certain limits. A good harvest and low prices may be a great temptation to operators, but the full merits of the market must also be taken into consideration, otherwise transactions are likely to prove unprofitable, and the heavy losses already incurred will be still further increased. A mere feverish excitement cannot create a revival of trade, and therefore it may be as well to throw a damper at the outset upon the little extra speculative feeling that has been springing up during the past few days.

During the greater part of the week this market has displayed an easy tendency, and business has been quiet. The principal feature has been the acceptance of the lowest price on record, but this is now becoming such a common and ordinary characteristic, that it fails to tempt buyers into the market. So many operators have been recently crippled from making purchases on this account that they hesitate before buying again. When prices were even 10% per ton higher than what they are now the same cry was raised, and buyers then congratulated themselves upon the bargains they thought they had made in buying at the lowest prices ever accepted, and so, as the market has dwindled down speculators have more or less continued to purchase, and thereby greatly increased their original losses; and now, disgusted with their recent operations, almost ruined by their heavy losses, and perhaps totally unable to continue buying, even if they were so disposed, they realise as far as possible without altogether destroying their market, and especially so when the slightest spurt is effected in prices. The market at the commencement of the week was particularly easy, which may be accounted for from a variety of reasons. In the first place, the statistics which were published could scarcely have been more unfavourable, showing an increase of the total visible stock for the month of August of 1666 tons, the total amounting to 55,389 tons, against 53,723 tons on the 31st July last. The supply last month was 9523 tons, and the deliveries 7857 tons. Hence during the month of August, notwithstanding a moderate business was being transacted, the supply was a long way ahead of actual requirements, and in consequence stocks continue to accumulate. This, however, is not the chief cause of the existing depression. If there were only an increase in stocks during one month merely, a temporary ill effect might be anticipated, but it is the constant and ever-growing supply that is knocking-down prices. The 14,000 tons increase in stocks during the past 12 months is what is unsettling and disorganising the market, together with the probability, we might say the almost certainty, of a still further increase in forthcoming supplies. Another matter also which greatly influenced the market at the commencement of the week was the announcement of the Chili charters for the last fortnight of August as 2100 tons, the shipments 4000 tons, and the Valparaiso Exchange was quoted at 23. These advices show that there is no prospect of any reduction in the supply from Chili, and in spite of the stock of Chili bars now being extremely heavy, some 8400 tons more than what it was at the same time of last year, still there appears every prospect of that stock being made still heavier. For

reasons which we brought under the notice of our readers in our last issue, there is not the demand amongst smelters for Chili bars that there is for lower produced copper, with the consequence that bars come to this market principally to be put into the public warehouses, and to increase the stocks of the already overburdened holders. A revival just now would undoubtedly be generally welcomed, provided it arose from legitimate causes; but a forced revival, which it seems some attempt is about to be made, would in the end do more harm than good. A rise should be based upon the true merits of the article itself, in order to be of any permanent value, and not upon mere "bulling." Premature advances are invariably more damaging to a market than if prices were left to take their regular course. A forced revival means building upon false hopes, and upon an unsound foundation, and which no thorough business man would think of doing for one moment, as the gain would in no way be commensurate with the risk. To ensure a lasting improvement in prices of copper there must be an increased *bona fide* demand of such an extent as will be equal to the increased supply; in fact, it should rather exceed it than otherwise. Now, up to the present time that improved demand does not show itself, for at the close of August there was, as we have already seen, a further increase of some 1600 tons in stocks, and a full charter of 2100 tons to be taken into account in the next return, besides the deliveries were also extremely moderate. Therefore, since there are only very moderate deliveries, the stock largely increased, the total visible stock now being 55,389 tons, and the last charters above an average, or in a word supplies excessive, where, it may well be asked are the justifiable reasons for an advance. Simply because the price is lower than formerly? That, indeed, would be a very poor reason, low prices being the result either of bad trade or over-production. The probable reason is that present holders are losers, but if they originally paid too much, that is their affair, and they must put up with the loss, but that is no reason why the market should be inopportunately disturbed. The reduced prices, no doubt, go hard with holders, and those who have prompts coming due, but the position of the market cannot be changed to suit private interests. A remedy must be discovered in another way than that of a forced revival, placing our market in a false position, and lulling holders into a false security.

This market remains steady, prices showing but little alteration. We start the month of September with an increased public stock in Glasgow and Middlesborough, compared with what there was a month ago of about 25,000 tons, the chief increase being in Middlesborough. This is a fact which calls for special comment, because during the last few weeks there have been rumours circulated of better trade, and particularly have such reports come from Middlesborough, the place where the increase in stocks is largest. The Cleveland ironmasters' returns show an increase in stock for August of 14,000 tons, the total now amounting to 430,000 tons, being an increase during the last 12 months of 160,000 tons. There are 97 furnaces in blast, and the total production last month was 206,000 tons, of which 56,000 tons were hematites. In face of such returns it may be asked how can we reconcile this vast increase in public stocks with the reports of improved trade? Are such advices entirely unfounded? At first sight it would appear so, but upon further investigating the present state of business it will be found that the export branch of the Middlesborough trade has decidedly improved. Shipments last month were much larger than those of the few previous months, and this has implanted a certain amount of confidence to the tone, and established a slightly better feeling. This, too, combined with the ruling low price, attracted the attention of speculative operators, who from a few heavy purchases have given still further strength to the tone, and have helped to cause some slight restoration in prices. The increase in stocks would indicate that many of such operators have been buying iron and placing it in public stores in the hope of better times; but how long they may have to hold it is at present impossible to foresee. Just now there are no warrants in circulation in Glasgow and Middlesborough for rather more than 650,000 tons of pig-iron; and though we are ready to admit that some of that quantity is held by strong holders, yet a very large proportion of it might at any time be pressed upon the market, an event which would have a most depressing influence, and not only would the recent little advance be very soon swallowed up, but a still further reaction would inevitably follow. It is the invariable result of speculation in bad times, because stocks drift into the hands of weak holders, who have often operated more for a difference in market value when prompted full due than for an investment; and, notwithstanding that such operators may sometimes hold to their stocks for a few weeks, it is very rarely for any longer period. The outside public, who practically know little or nothing about the actual state of the market, may be led to assume that the little stiffer tendency is a good sign, and is likely to produce a healthy influence upon trade in general; but to those who know the regular effect which must be produced from the ever growing stocks have no confidence that these various little spurts will prove more than a flash in the pan. It is a matter of comment that the little extra business doing in pigs does not extend to manufacturing, and in Middlesborough especially, where the chief part of the extra business is doing in the raw material, a very dull and gloomy trade is being transacted in finished iron, and the low values entirely fail to stimulate the demand. In Staffordshire, however, there is a little more briskness in sheets, particularly for galvanising, and some fair exports have recently been effected, prices being a shade stronger. However, with the exceptions to which we have referred, there is little or no change to be recorded, all other descriptions remaining quiet in demand, and steady as regards prices. The Glasgow Warrant Market opened on Monday with a good deal of disposition to buy, and various transactions were carried through betwixt 41s. 6d. and 41s. 7½d., and on Tuesday there was a good business done from 41s. 6½d. to 41s. 8d. On Wednesday, the market having opened strong at 41s. 11d., the price receded to 41s. 9d., but yesterday the market was very strong and excited, a large business having been transacted between 42s. 1d. and 42s. 5d. cash. To-day the market is closed on account of the visit of the Iron and Steel Institute to Glasgow. The shipments last week were 8268 tons, against 9539 tons for the same week of last year, being a decrease of 1271 tons, and which makes the total shipments for the whole of this year 301,001 tons, against 74,768 tons for the same time of last year, and 442,833 tons for the similar period of 1883. There is one furnace less in blast, the present total being 89, but the public stock has been further increased by 1413 tons, and now amounts to 618,218 tons, against 616,805 tons last week. The imports of Middlesborough pig-iron into Grangemouth last week were 9510 tons, against 3980 tons for the same week of last year, or an increase of 5530 tons, and which makes a total increase for the whole of this year compared with last year of 76,122 tons. A firmer tone has characterised the Cleveland market, and during the last fortnight prices for No. 3 have advanced 6d. per ton, the present quotation being 32s. 3d. for sharp delivery, and 1½d. to add more for forward, and in some instances makers look for a still further advance. Business, however, is becoming rather restricted at the advanced value, while No. 4 is quoted at 31s. 3d. and forge iron at 33s. The public stock increased last week by

7362 tons, and the shipments during August were about 78,000 tons. The demand for manufactured remains very dull, at 47. 15s. for bars and plates, and at 47. 10s. for angles. At Wolverhampton the tone of the market is less depressed, and slightly more has been doing in both sheets and pigs. The principal business in sheets has been for Russia, India, and Australia, and the quotation has advanced 2s. 6d. per ton. Derbyshire pigs are quoted at 39s. to 40s., Northampton at 38s. to 39s., and Lincolnshire at 41s. 6d. The Birmingham market has been brisker, and prices for pigs have advanced. Galvanised sheets are in good demand at an advance of 5s., and manufactured iron generally is about 2s. 6d. higher.

At the commencement of the week a very dull and gloomy feeling characterised this market, and prices receded rapidly at the rate of about 10s. per ton per day until on Wednesday 90l. was accepted for cash parcels of foreign. This figure was again taken yesterday morning, but afterwards the tone strengthened and the price recovered 6s., whilst to-day there has been a very strong market, prices advancing from 91l. 5s. cash to 92l. The statistics that were published on the 31st ult. show that the stock in America last month increased from 1100 to 1370 tons. Not a very large increase, and the stock in that country is still rather limited; but at the same time there is now sufficient stock in America to prevent all the fluctuations of prices on the other side of the Atlantic making any particular impression upon the market here. During the time that there was so much scarcity of tin in America every little fluctuation in the price at New York has its immediate effect upon quotations here; but now our market is regulated more from prompt features immediately connected with it than from outside influences. The stock in America is still sufficiently light that, were there any increase in demand in that country or reduced supply, prices here would again be favourably influenced; but, for the time being, the effect is not likely to be great, or, at all events, not so great as during the last few months. It is, however, worthy of note that the principal supply to America last month was from this country and from Holland, the total from the two places being 710 tons, whilst the supplies from Straits to America were 300 tons, and from Australia to America 150 tons. The next point that calls for comment in the statistics are the deliveries in London and Holland, and although they show an improvement compared with the previous month, yet the reduced make of tin-plates is evidently causing an unfavourable influence upon the demand for this metal, and makes the comparisons with corresponding periods very unsatisfactory. The total deliveries last month were 1581 tons, against 1453 tons in July, 2405 tons in August last year, and 1948 tons in August, 1883. The comparison looks even more unfavourable, because it is drawn with a month last year when the deliveries were exceptionally good, and also at a time when prices were about 10l. per ton lower than they are now, and which may have been the means of stimulating the demand at that time, whereas now there is a positive reason for the reduced deliveries. The shipments last month from Straits to London were 950 tons, and from Australia 750 tons. The total visible stock, including that in America, has increased to 13,836 tons, against 13,694 tons on the 31st July, and 13,236 tons on the 31st August, 1884. The total supplies for the 12 months ending 31st. ult. were 25,984 tons, against 26,286 tons during the previous 12 months, or a decrease of 302 tons, whilst the deliveries for the same periods were 33,295 tons, against 35,708 tons, or a decrease of 2413 tons. The statistics cannot be considered satisfactory, and notwithstanding that there may be fluctuations in prices and temporary spurts effected, still it is possible that some reaction may be necessary in order to stimulate the demand, for the features which were temporarily affecting prices in a favourable manner have passed away, and the returns show a positive falling off in actual business, besides a positive increase in supply over demand, features which, unless immediately changed, must necessarily lead to reduced values. Holders being tolerably strong, no sharp reaction perhaps may take place, but still, unless there be some change in the existing rate of supply and demand, prices will doubtless sooner or later recede to some extent.

QUICKSILVER remains steady, but very little business is passing.

THE MINING SHARE MARKET has been rather more active for a few minutes this week, but the low price of metals adversely affects market quotations generally, and most shares are lower in this respect than they were, particularly when pressed for sale; while on the other hand buying orders cannot always be executed in a few prominent mines at the lower quotations given. The mines chiefly dealt in have been Wheal Grenville, West Kitty, East Blue Hills, Prince Royal, Blue Hills, Prince of Wales, West Frances, Wheal Crebor, West Godolphin, New West Caradon, Killifreth, and a few others.

Tin has been dull, but leave off firmer. Since the 10th ult. no change has been made in the standard for ore in Cornwall. In shares very little business has been done. Blue Hills are quoted $1\frac{1}{2}$ to $1\frac{3}{4}$, old shares; Carn Brea, 3 to $3\frac{1}{2}$; Cook's Kitchen, 10 to 11; Dolcoath, 71 to 73; East Pool, 45 to 46; East Blue Hills, 31s. to 36s.; the lode in the eastern end has improved to 30l. per fathom. Killifreth, $\frac{3}{4}$ to $\frac{1}{2}$; New Kitty, 10s. to 12s. 6d.; New Cook's Kitchen, 10s. to $\frac{1}{2}$; Phcnix, $1\frac{1}{2}$ to $1\frac{3}{4}$; Polberro, 2 to 2 $\frac{1}{2}$. Prince Royal shares have been in fair demand, and advanced to 6s., 8s. On Tuesday a telegram was received that the East Blue Hills lode had been cut in the adit level. A special report of the mine by Captain Nance, who is well up in this district, will be found in another column. South Condurow, $6\frac{1}{2}$ to 7; South Crofty, 5 to 5 $\frac{1}{2}$; South Frances, $2\frac{1}{2}$ to $2\frac{3}{4}$; Tincroft, 61 to 7; Travanance, $2\frac{1}{2}$ to 2 $\frac{3}{4}$; West Basset, $1\frac{1}{2}$ to $2\frac{1}{4}$; Wheal Basset, 6 $\frac{1}{2}$ to 7; West Frances, $7\frac{1}{2}$ to 8; West Godolphin, $1\frac{1}{2}$ to $1\frac{3}{4}$; West Kitty, $6\frac{1}{2}$ to $6\frac{3}{4}$; West Polberro, $\frac{3}{4}$ to $\frac{1}{2}$; Wheal Agar, $19\frac{1}{2}$ to 19 $\frac{3}{4}$. Wheal Grenville have been breaker at 10 $\frac{1}{2}$ to 11 $\frac{1}{2}$. Wheal Kitty (St. Agnes), 10s. to 12s. 6d.; Wheal Metal and Flow, $\frac{1}{2}$ to 1; Wheal Peevor, $\frac{3}{4}$ to $\frac{1}{2}$. At the Levant meeting a dividend of 10s. per share was declared; the accounts showed a profit on four months' working of 1315 $\frac{1}{2}$ l., and a credit balance of 1692 $\frac{1}{2}$ l. Pend-an-dra, $\frac{1}{2}$ 19s. to 21s.; Goodevere, 1 to $1\frac{1}{2}$; Feeland Conso's, $\frac{1}{2}$ to $\frac{1}{4}$; Par Tin, 1 to $1\frac{1}{2}$; Tindene, $2\frac{1}{2}$ to 2 $\frac{3}{4}$.

COPPER continues very low, and there is scarcely anything doing in shares, which remain at nominal prices. Bedford United, 10s. to 2s. 6d.; Devon Great Consols have been weaker at 1½ to 2½; Marke Valley, 2s. to 3s.; Mellanear, ¾ to 1; New West Caradon, 1s. 6d. to 2s. 6d.; the lode in the winze below the 28 is worth 2 tons of copper ore per fathom. Wheal Crebor, ¾ to 1; the points in operation here are valued in the aggregate at 59 tons of copper ore, and 27 tons of mundic per fathom. West Seton, 5 to 5½; this mine is now more than 240 fms. deep, and should be getting into more tin ground to increase its returns. Some of the stopes are valued at 20*l.* and 25*l.* per fathom; the whole of the points in operation are worth 135*l.* per fathom in the aggregate, but the returns of tin in the last four monthly statement were only 50 tons, realising 2615*l.*, while the costs were over 4000*l.* South Caradon, ¼ to ¾. Prince of Wales, 7s. to 9s.; a telegram was received at four o'clock on Friday afternoon as follows:—"Cat flooken in bottom cross-cut; ground much eased, water increasing, and indication of lode being near. New lode east improving." The first part of this refers to the main lode, which was so good at the 102 that the shaft was sunk to the 115, and a cross-cut put out to meet it at this greater depth.

LEAD keeps about the same, with scarcely anything doing in shares. The quotations, therefore, are mostly nominal. Vans are quoted $1\frac{1}{2}$ to $1\frac{3}{4}$; the 150 cross-cut has been driven 25 fms. The 135 west is driven 10 fms. upon the course of the lode, which in the bottom of the level is worth 3 tons of lead ore per fm. Great Laxey,

to 10. D'Eresby, 1 to 1½; the lode going down under the shale, on hanging side, is worth about 2 tons of lead ore per fm.; in the heading, 1 ton. Leadhills, 2½ to 2¾; Roman Gravel, 4 to 4½; Weardale, 1 3-16 to 1 5-16. The general appearance of the mines belonging to this company are described as very encouraging. Craven Moor, 9s. to 11s.; Great Holway, 1½ to 1¾; Minera, 5 to 7; South Darren, 7s. to 9s.; Standard Lead, 1½ to 1¾; Holywell District Lead, ¾ to 1.

FOREIGN MINES.—Business in these has not been large, and there is very little variation in prices except in Chile Gold and Copiapo. Birdseye Creek are quoted 1½ to 1¾; Bratsberg, 12s. to 14s.; Callao Bis, 3s. 6d. to 4s. 6d.; Cape Copper, 25s. to 27s.; Chile Gold, 6s. to 7s.; Colorado, 2½ to 2¾; Columbian Gold, 9s. to 11s.; Copiapo rose to 3½, and leave off 2½ to 3; Frontino and Bolivia, 12s. 6d. to 15s.; La Plata, 4s. 6d. to 5s. 6d.; Montana, 2½ to 2¾; Mysore, 1½ to 2½; Nundyroog, 8s. to 10s.; Orita, 1 to 1½; Oscar, 6s. to 8s.; Panulillo, 2 to 2½; Richmond, 3½ to 4; St. John del Rey, 70 to 75; Santa Barbara, 1 to 1½; Schwab's Gully, 3½ to 3¾; Tolima, A, 2½ to 3½; United Mexican, 2½ to 2¾; Glenrock, 3s. to 4s.; New Emma, 6s. to 7s.; Potosi, 4s. to 6s.; Ruby, 6s. to 8s.; Organo, 6s. to 8s.; the crushing for 14 days, amounting to 140 tons of quartz, has resulted in 140 ozs. of gold. The lode also, we are informed, has improved, and now worth 4 ozs. of gold per ton.

Mining Notes.

THE tendency to improvement in general trade circles noted last week has distinctly gained in strength and volume. It is yet early to anticipate its further extension; but it is eminently satisfactory to note that the demand for manufactures and raw material is not confined to one trade; but may be observed as current at all, or nearly all, the large trade centres. At Glasgow, for instance, we found quite a hopeful view prevailing of the future course of the iron market, and certainly the impression left upon us, after interviews with some of the largest ironmasters, was that the feeling of anxiety which has prevailed so long has been supplanted by strong confidence in what the future may bring. At Manchester, Leeds, Bradford, Sheffield, and Birmingham the same movement in trade circles is observable, although the approach of the General Election might have been expected to exercise a restraining influence upon trade movements. It appears, however, as if the combined influence of cheap money, the absence of disturbing political elements at home and abroad, and the anticipation of good harvest results, has at last overpowered the prophets of depression with the result that the business of the country has, as we have said distinctly, improved, and still shows an upward inclination.

THE Alamillos Company yesterday (Friday) declared a dividend of 1s. 6d. per share, the Fortuna Company a dividend of 3s. 3d., and the Linares Lead Mining Company a dividend of 3s. 6d. per share, all free of income tax, and payable on the 19th inst.

PRESSURE on space compels us to hold over a reference to the proceedings at the Summer Session of the Iron and Steel Institute, at Glasgow, this week.

THERE is no doubt the scheme of reconstruction adopted by the shareholders of the Callao Bis Gold Mining Company, at their meeting yesterday, will meet with the approval of all business men. A sufficient amount of capital will be provided to thoroughly develop the lode, which they are now driving to reach. The report of Mr. W. Bell-Davies, recently issued, speaks well of the property.

A VERY favourable report has been received from the Organos Mine. The latest crushing (140 tons) yielded an average of 1 oz. of gold per ton. The lode is now improved, and reported worth 4 ozs. of gold per ton, and the manager writes that should it be cut equally rich at a deeper point a fine mine will soon be opened up. It is believed from the report of a gentleman lately arrived in England that the lode has been found at the point referred to even richer than was expected.

AT Devon Great Consols the 124 fm. level, at Watson's part of the mine, has improved both east and west, and is reported as yielding 2 tons of copper and mndie ores per fathom.

THE Mysore Gold Mining Company (Limited) have received a telegram from Captain Plummer, dated 4th September, giving the month's return of gold as follows:—136 tons rich quartz from bottom of the mine produced 350 ozs., and 19 tons of ore from 173 ft. level north produced 16 ozs. Total, 155 tons ore yielded 366 ozs. gold.

THE New Potosi Company (Limited) have received a telegram from the mines stating that 201 to 225 ozs. of gold have been remitted.

OWING to the present condition of the iron and coal trades the directors of Bolckow, Vaughan, and Co. consider it inadvisable to pay any interim dividend for the past half-year.

THE directors of the United Mexican Mining Company have received the following telegram:—The excess of returns over outlay on the mine of San Cayetano de la Ovejera for the week ending August 29 is \$3800. Have sent 2000l.

IN the letter entitled "Discrepancy in Share Values," in the Journal of last week, "I cannot really understand why Grenvilles should not be worth 20l. per fathom," should read "20l. per share."

THE machinery, plant, and materials of the Cathedral Consols is to be sold by auction on September 15. Full particulars will be found in another column.

THE Venezuela-Panama Gold Mine Company (Limited) received cable advices on Wednesday reporting recommencement of full work on termination of the drought (which lasted over three months), and a remittance of 3025 ozs. of gold from 2425 tons of quartz milled by 60 stamps in 27 days.

MR. W. Rickard, miners' agent, at the request of the Salford Humane Society, has reported upon cases of distinguished bravery displayed by men engaged in the exploration, and attempts to save life, after the Clifton Hall explosion, and recommended that special medals, which the society is having struck, should be given to the following:—Aaron Manley, pit carpenter; Peter Horsefield, pit carpenter; George Hindley, blacksmith; Thomas Worrall, underlooker; Charles Parkinson, fireman; and George Higson, fireman. Other rewards are to be given to explorers from a fund publicly subscribed for the purpose.

THE Ontario Silver Mining Company have declared their usual monthly dividend of 50 cents per share, payable on August 31. Total to date \$6,650,000.

THE latest accounts from the mines owned by the Ecton Company (Limited) are satisfactory. The discoveries made at the bottom of the Clayton Mine, directly the water was pumped out, continue to improve in quality and to increase in extent. The ore is said to be of very high grade.

THE Small Hopes Mining Company, Colorado, paid on August 15 a dividend of 20 cents a share, aggregating \$50,000. Total amount of dividends paid to date \$1,437,500, or \$5-57½ per share.

BASSET and Buller Consols Mine (Limited), formerly under the management of Captain Richard Pryor, of Trefula, is to be wound-up in the Stannaries Court, on the petition dated April 2, 1884, of John Tonkin, of Tuckingmill, mining engineer, a creditor. —Wheal Buller Consols (Limited) is to be wound-up in the Stannaries Court, on the joint petition dated April, 1884, of John Tonkin, of Tuckingmill, mining engineer, and James Holman, Pool, merchant and builder, respectively.

AT the Violeta Gold Placer, in Spain, the permanent works for bringing in the river to effect sluicing operations are about completed, the water having commenced flowing through the large iron tube on the 1st instant. It is intended to commence sluicing for gold on a large scale from the upper part of the property without delay. The manager reports that there is no cholera in the Ponferrada district and that the health of the establishment is good.

THE operations carried on by the present management of Mid-Devon have been productive of results which certainly justify their continuance. The one stoppe which is being worked is yielding 6 tons of ore per week; and there is little doubt that if the 100 fm. were reached, and driving were vigorously taken in hand, other equally productive stoppes would be available. But to effect this funds are required, and the last appeal is being made to the shareholders to take up the balance of 2000l. of preference shares. The directors have throughout supported the venture in a manner which deserves every commendation, and if, as seems probable, the present company has to be wound up, the outside shareholders will alone be to blame. A full report of Monday's meeting appears in another column.

AT the meeting of the Balkis Company, on Monday, the resolutions having for their effect the reconstruction of the company were carried; the one unanimously, the other with four dissentients out of a large meeting. It was stated that the subscription of 2s. per share will pay off the liabilities, and provide ample funds for the development of the property. Meanwhile the liquidation of the old company is to be carried out by Messrs. Maynard and Stoneham, who will enquire carefully into the inception and subsequent proceedings of the company. Colonel Malleon, the Chairman of the old company, courts the fullest investigation, and has promised to assist the liquidators in their enquiries. He has also promised to join the new board if, upon the report of the liquidators, he is requested to do so. There was a pretty general consensus of opinion that there has been quite enough contentious literature circulated concerning the affairs of the company, and that, as Mr. Jeffreys expressed it, there should be a burial of the hatchet all round. A full report of the meeting appears in another part of the present issue.

WE have been favoured with a perusal of a private letter written by an English barrister, the author of a work on Australian travels, to a friend in the City, in which, speaking of a mine on the Charters Towers Gold Fields, Queensland, which until lately had not been heard of, he says:—"With John—as manager, a good winding plant, and 15 heads of stamps, I would guarantee a profit of 30,000l. a year." Speaking of mines on the field which have lately been put into joint stock companies with local capital and nominal 1l. shares, he says:—"Bonny Dundee's are 2l.; No. 6 Queen 3l.; No. 2 Queen 3l., and everything on gold. I fear want of water will pull the output down again, as most of the millowners must stop crushing soon if they get no rain. The Rainbow crushed over 2 ozs. to 1 ton last time. Mossman's company cleaned up 250 tons last Friday for over 5 ozs. 14 dwts. to 1 ton, and they have 600 tons more of the same now going through." With such results as these in our colonial possessions, with unquestionable titles from the Crown, it is certainly to be wondered at that people desiring a larger return for their money than they obtain by investing in Three per Cent. Consols should rush to unexplored regions where, if they should happen to get anything they find that they have no title to their property. There is no doubt that Australia, especially Queensland, and more especially the northern portion of that young colony is entitled to take, and, indeed, is taking a place in the front ranks so far as the precious metals are concerned.

AT Cook's Kitchen, Dunkin's lode, which has been intersected at the 234, has been driven into 5 ft. The lode is fully 5 ft. wide, and of the value of 20l. per fathom. As yet the south wall has not been cut. The produce, so far, has given 70 lbs. to the ton of stuff—very good work as the fact testifies. They are here getting the trip-plat ready under the 308, and the sinking of the shaft will be resumed in the course of a few days. The agents hope to reach the south lode in 2 fathoms further sinking.

TO most members of the Mining Association and Institute of Cornwall, Mulberry Mine, in Lanivet, was a complete surprise. Many had, probably, not heard of the mine before. Finding tin at surface, the whole earth has been excavated to a depth of at least 200 ft. The width and length of the workings are considerable, and the sight presented suggested the idea of a huge chasm. It is certainly a splendid example of excavation, and that the stuff here, which is said to give a produce of from 5 to 6 lbs. of tin only to the ton should be worked at a profit, staggered the mining fraternity, Captain Josiah Thomas expressing publicly his surprise. The mine, however, is in the hands of a Limited Liability Company, and it does not figure among the principal mines dealt in in the county.

IN respect of Trebartha-Lemarne, Mr. Watts sends us a circular to this effect: During the past fortnight a costean-pit has been sunk in the old men's working, 60 fms. east of Kempthorne's shaft, and 12 fms. north. In doing this a rich tin lode has been discovered free from arsenic or wolfram, but carrying a little sulphur-mundie. The old men's level has been found. We shall now proceed to find out whether we have discovered a new lode, or whether it is the eastern portion of the one we have been and are still working on.

LEVANT—the most flourishing of the St. Just mines—has vastly improved during the past four months, and we sincerely congratulate Captain "Dick" White on the result achieved. A profit was made of 1692l., and a dividend was agreed upon of 10s. per share, representing 1192l. At this rate the mine is paying 30 per cent. on the marketable value of the shares. By this we mean that the last shares in the market realised but 5l. per share. But what has the *Mining Journal* said during the past two or three weeks of the position outside investors are placed in not knowing what they should of St. Just mines? And has it not been argued that mining companies—in St. Just—should be regulated like private banks? Under these circumstances—for the first few months—Levant, for the value to be had for the shares, gives best interest.

THE Home Secretary has appointed a working collier as Mines Inspector for the county of Durham. The person selected is Mr. John Plummer, underviewer at Hetton Colliery, the property of Mr. Lindsay Woods.

AT Carn Brea, on Monday, a youth, 18 years of age, of the name of Trengrove, who went underground for the first time, missed his footing in riding on the man-engine, and, falling, was killed. At Dolcoath, on Tuesday, by the premature explosion of a hole, a man named Jackson was seriously injured, especially in respect to his eyes. It is thought his sight may be permanently endangered. At Wheal Agar, on Monday, a man named Nicholls was seized with a fit, in which he died.

BY reports from the Wassau (Gold Coast) Mining Company (Limited) Mines, the month of June was a very trying period. Owing to the temporary flooding of the works, but little ore could be extricated; consequently the stampers were almost idle, producing only 57l. 11s. value of gold. July, however, had commenced with better prospects; on the 6th the water had fallen back very much, though not from the best mineral ground until after the 20th; but the mills were being kept going by supply of ore, and a general improvement was taking place daily.

THE following telegram from the Tasmania Mine, dated June 26, appears in the *Tasmanian Mail* of July 4:—We have cleaned up from a crushing of 1862 tons. The amalgam from plates and ripples amounts to 2684 ozs., and from the boxes 2833 ozs. The 50-head battery will start crushing again to-night. The gold will be retorted in the morning.—June 27: The amalgam from crushing yielded 2381 ozs. of retorted gold, valued at 8928l. 15s., the average yield being a fraction under 1 oz. 5 dwts. 14 grs. to the ton. A dividend has been declared of 4s. per share, free of dividend tax, payable on Monday, and 300l. carried to the reserve fund. The dividend tax will amount to 225l. The previous report showed an average of nearly 2½ ozs. to the ton.

THE directors' report of the Wicklow Copper Mining Company for ten months ending 30th June has just been issued. In accordance with the resolution passed at the general meeting in October last, the accounts have been made up to the 30th June (covering a period of ten months from the last statement), and they are now submitted to the shareholders. After paying all charges there remains a net surplus of 1616l. 11s. 3d. on the working of the period, which amount has been carried to the credit of profit and loss. The Arklow manures, the report states, are steadily progressing in the favour of the agricultural community. A considerable outlay has been made on the ochre plant, and the company has been thereby enabled to produce a marketable ochre of uniform quality, in quantity, and at a reasonable cost. Already a couple of cargoes have been sent to England, and several parcels to Scotland, and negotiations are in progress with English and Scotch firms desirous of becoming agents for the company's ochre, and who are prepared to push the sale of it in preference to any other ochre of the same character.

OUR readers who know Mr. Walter, Ness, M.E., C.E., who lately for the Indian Government developed the Warrora coal fields in the Central Provinces, and who previously was one of the leaders of scientific mining in South Staffordshire, will be sorry to hear that that gentleman has recently been shipwrecked. Mr. Ness was going out upon important professional business to the Upper Congo, and was a passenger on board the British and African Steam Navigation Company's steamship Corsica, when, at a few minutes past four on the morning of July 23rd, she was wrecked off Grand Cess, about 350 miles from Sierra Leone. In the scantiest of clothing the passengers and crew, numbering about 72, got on shore after three hours' exposure in open boats, and during heavy rain and a considerable swell. The natives proved accomplished wreckers, and but for a Dutch store and its hospitable accommodation, it would have fared ill with the company and passengers of the Corsica during the nine days which elapsed before they were taken off, and enabled most of them—Mr. Ness amongst the rest—to proceed towards their destination. As the steamer went down within 20 minutes of her striking, hardly anything was saved. Mr. Ness could secure only his note-book and his instructions. Valuable scientific implements and books—some of which he can never replace—all went down. The temper of the natives was shown in the threats in which they indulged. As Mr. Ness and an outgoing Presbyterian missionary were together, a couple of stalwart fellows rushed out upon them from the bush. Flourishing a kind of cutlass-knife, one of them, in broken English, called out—"Now we've got you." Mr. Ness at once faced up prepared to seize the savage or his weapon, and with unmistakable determination in his eye said—"Got us for what?" The savages scarcely delighted with the prospect, were not long in regaining the bush.

SOUTH CARADON MINE (Limited).—It will be seen by an advertisement in another part of the Journal that the above mine is to be offered for sale as a going concern on the 9th inst., at the Auction Mart, Tokenhouse-yard. The following are a few interesting particulars referring to the property:—The sett is situated in the parish of St. Cleer, Cornwall, and working was commenced in 1837. There are several well known lodes running through its entire length. The mine was conducted on the Cost-book System for 36 years, during which time, upon an original outlay of 640l., was raised and sold 1,650,000l. worth of copper ore; 384,512l. was the amount paid in dividends, and 90,000l. in dues to the lords. The late shareholders were desirous of reconstituting the company for further development of the property; but under exceptional circumstances affecting their relations with the lords the sett was surrendered, and the present company was then formed, in May, 1883, the outgoing company receiving 16,125l. for machinery, &c. A portion of the property is called "Foredown," which is of considerable extent, and believed to be of great value. It contains at least six lodes, wholly undeveloped. The mine is in full working order, and is provided with machinery, stores, materials, and buildings of a complete and efficient character. From May, 1883, the returns of ore have amounted to 7986 tons 15 cwt., realising 29,316l. 6s. 9d. The ores are of great variety and high percentage, and should the standard for copper ores improve a large extent of ground could be worked—at present idle—with fair profits, and valuable discoveries would, no doubt, be made.

JOHN KNIGHT AND COMPANY (OF THE COOKLEY IRONWORKS), LIMITED.—Object, acquire the whole or any of the assets and liabilities of John Knight and Co., of Cookley Ironworks, in Staffordshire, and of the Brookmoor Iron and Tin-plate Works (Limited) upon such terms and conditions as may be arranged, and carry on the business of an ironmaster, miner, smelter, and manufacturer of sheet-iron, tray sheets, Canada plates, steel plates, galvanised iron, &c., &c. Registered by Hollams, Son, and Coward, Mincing-lane, E.C. Capital 50,000l., divided into 5000 shares of 10l. each. The first subscribers (who take one share each) are—F. W. Knight, C.B., M.P., Wolverley House, Wolverley, Kidderminster; Edward Budd, Bond-court, Walbrook, E.C.; Edward F. Budd, Bond-court, Walbrook, E.C.; R. S. Casson, agent, Briery Hill; William Hutchinson, Ettingshall-road, Wolverhampton; Henry Bennett, manager, Cookley House, Cookley, Kidderminster; J. E. Budd, Bond-court, Walbrook, E.C. The number of directors to be not less than three nor more than seven. The first directors are—Colonel Knight, C.B., M.P.; and Edward Budd, E. F. Budd, R. Smith Casson, W. Hutchinson, J. E. Budd, Esquires. Qualification, 10 shares. Remuneration to be decided at general meeting.

MESSRS. WILLIAM WILSON write from Glasgow on September 3d:—The Scotch pig-iron market continues firm, and at Middleborough also prices have a hardening tendency. Although this improved tone is attributable more to hope than to an increased demand, it is all the same, a welcome feature; and, as hope begets confidence, we shall have more readiness on the part of both merchants and investors to make engagements for the future.

THE GOLD AND DIAMOND FIELDS OF SOUTH AFRICA—No. XVIII.

BY THOMAS COLLINGWOOD KITTO, M.E.

[ALL RIGHTS RESERVED.]

The dangers and hardships frequently experienced by pioneer diggers are very great indeed. They have to combat with the various diseases incidental to the locality and climate, often without water, and with very little food. Venomous reptiles lurk in the grass, and wild beast hover around their camp by night. Hordes of warlike savages surround them at all times, ready to kill them for a sake of a tin can, a roll of tobacco, a pair of pants, or a threadbare blanket. This description applies to the pioneers of almost every great gold diggings which I have known, and it is universally acknowledged that the diamond diggings were no exception to the rule. I am sure the majority of your readers will say the pioneer digger is justly entitled to all the discoveries he may make, and in Australia and California he got it, but not so in Dutoitspan and Bultfontein, South Africa. The digger was left in quiet possession so long as it was all hard work and no diamonds, but no sooner had he "struck it" (diamonds) than a mine was sprung upon him by having his rights disputed. Of course the diggers resisted all they could, but eventually capital triumphed over justice—as it so frequently does—and the weakest went to the wall. There was not a digger whom I met at Dutoitspan who did not tell me that the diggers had been cruelly deprived of their rights. I remember the same little game being once tried in Australia, but the diggers there adopted a very summary mode with the sharks which followed in their wake, which was perfectly successful, and they were ever after left in undisputed possession of their just rights. I simply relate the facts as they were told me by the diggers of Dutoitspan and Bultfontein without prejudice. I went more fully into the matter in my report to the Government, and as the statements were not questioned at the time I presume they were correct. At the time I inspected those mines their organisation was very indifferent indeed. The Bultfontein Mine, taken in the aggregate, is a good property, and if properly conducted cannot fail to pay dividends for a very long time. I found the same complaints here as at Kimberley with regard to the traffic in stolen diamonds; but I was informed that the complaints were all moonshine, as everybody made it a rule to get all the diamonds they could, without being too particular as to where they came from. I was also assured that those who proclaimed the loudest and looked the most innocent were supposed to be the chief centres of the diamond thieves' organisation, and my own observations led me to the same conclusion.

After leaving Bultfontein I inspected the Old De Beer's Mine. The greatest length of this property is also from east to west, about 1130 ft., and its greatest breadth from north to south is about 670 ft. The north side of the De Beer's formation at the time of my inspection was much richer than any other portion, and would compare favourably with the celebrated Kimberley Mine; but most of the De Beer's Mine was covered with floating reef (intrusive rock), and consequently it was only the north side of the formation which paid, but that paid well from the outset, and has continued to do so up to the present. It is generally considered that most of the companies in this formation have been sadly mismanaged, but those that have been properly managed have paid well. With regard to the traffic in stolen diamonds the same remarks apply to the De Beer's as to all the other mines.

In consequence of the great success of the celebrated Kimberley Mine all kinds of trash has been brought forward as genuine. Taylor's Kopje caused a big stir, and very large sums of money changed hands over it, but I do not believe that a single diamond was ever found there unless it was first placed there by some interested person. Saltpeterpan was another noisy nothing; and the celebrated Otto's Kopje—celebrated only on account of its worthlessness—was a dead failure. In consequence of the favourable report of Mr. Kilgour and another gentleman on this property I bought a few shares in it, but was fortunate enough to clear out in time without either profit or loss. There are a few diamonds in this formation, but it is not at all likely that it can ever pay. Kamfersdam has the appearance of being a true mine; it is about the size of Kimberley, and was evidently a mud volcano, but the reports as to its value are so conflicting that very little reliance can be placed on them. There can be no doubt that some of the proprietors had faith in it, as they spent large sums of money in developing it, and erecting splendid machinery, but as it has come to a standstill the evidences are against it. There has been a number of other trashy things over which money has changed hands, but they are not worth mentioning.

The Frankfort Mine, in which so many "experienced Kimberley diamond diggers" bought claims, and which caused very great excitement at the time, ought to be of interest to English investors, inasmuch as one-quarter of it was within an ace of being sold to an English company for the sum of 450,000*l.*; but, fortunately for English investors, the sale of the concern was contingent on a favourable report from Thomas Collingwood Kitto. I inspected the property, and found parties of duly-qualified surveyors busily marking out claims, and parties from Kimberley waiting to purchase them. Some of the surveyors said, loud enough for me to hear, that in pulling along the chain they had turned up several diamonds, which they produced. Several other claimholders who were working with hand-machines said they were finding diamonds plentifully, and were highly satisfied with their purchase. The proprietor of the farm, who had sold so many claims, was having a very large shaft sunk, a steam-engine erected, and big dams made for the storage of water. He showed me some beautiful parcels of diamonds, and felt quite sure that from the prospects of the Frankfort Mine he should be the richest man in the world. But he was magnanimous, and was anxious to restore confidence in the diamond fields by offering a portion of his property to the British public for 450,000*l.* But said he, "We have plenty, old fellow; we don't want to keep it all to ourselves, and it shall be a good thing for you." How good? said I. "Well, I was thinking about 10,000*l.* in cash and 20,000*l.* in free shares," said he. "No," said I, "it will not do." "Well," said he, "we must have a favourable report from you, so name your price." I went over the property, and decided it was one of the most shameful swindles ever attempted on the British or any other public, and I lost no time in placing the matter clearly before the readers of the *Mining Journal*. They tried every conceivable move to get a favourable report from me—over and over again they tried. But I am thankful indeed to say that the villainous offer had no temptations for me. But because I exposed this matter with one or two other questionable concerns the Press of South Africa tried to silence me by writing a lot of scurrilous articles in which there was never a shadow of truth, and scores of company promoters and Brummagem mining authorities have said to me—"Kitto, you ought to have pocketed the coin, and let the thing go through." How did the public act in the matter? Well, a few of my personal friends thanked me. A few others said—"If we had a few more men like Kitto to give us the unvarnished truth mining would soon be placed on a secure footing." But those mythological company promoters who control all mining meetings with their hundreds of thousands of promoters' shares, which never cost them a penny, and who never risk a farthing of their own. Those individuals said—"That Kitto has again spoiled our little game;

but we will be even with him yet." My sole object in referring to these matters is the interest of *bona fide* mining. I will undertake to say that the evidence which shall be placed before the Royal Commission, which has been appointed to enquire into the depression of trade, with regard to the rascalities perpetrated under the head of mining, will show that those rascalities have had more to do with the present depression than the public are aware of.

RECENT ABANDONED MINES.

CATHEDRAL CONSOLS.

CONTRIBUTED BY MR. EDWARD ASHMEAD, THE SECRETARY.

This mine, originally known as Wheel Cathedral, is in the parish of Gwennap, Cornwall. Prior to its later workings, 13 years from 1872 to July, 1885, it was prosecuted by two or more companies of adventurers extending from 1820 to 1856. The mines immediately surrounding it are Grambler and St. Aubyn on the north; Pennance and Ting-Tang on the south; Wheel Trefusis on the west, and West Damsel and West Jewell on the east. The sett comprises ground about 400 fathoms from north to south, and a like extent east and west. The formation is in granite, and close to the southern margin the killas comes in. The lodes which traverse the sett are—Old Wheel Damsel, which at one period of working gave a profit of 200,000*l.* to its owners. West Damsel, another well-known profitable mine, whose best copper ground was only 100 fathoms east of the Cathedral sett, while North Wheel Basset and South Wheel Basset are in a direct run westward. The late Capt. Joseph Jennings, of Tresavean Mine, was the agent of Cathedral during its first workings, and in a report bearing date January, 1856, a copy of which is in the hands of the present writer, he strongly recommends the mine as comprising one of the best pieces of unwrought mineral ground in the neighbourhood.

The productiveness of the neighbourhood needs no comment. The principal work done up to the time he reported was as follows:—"The adventurers sunk a sump-shaft perpendicular to the 60 fm. level under the adit, intersected the south lode, and opened on it east and west about 30 fathoms; here the lode averaged 4 to 5 ft. wide, composed of fluor-spar and flookan, impregnated with ore. A winze was sunk from the 60 to the 70 fm. level on this lode, and opened upon in the 70 for about 20 fms.; here the lode averaged for about 11 ft. wide west and 6 ft. wide east, composed of light spar, flookan, and cann, mixed with black and grey ore. By the advice of several mine agents the adventurers put up a large engine for the purpose of sinking this sump-shaft 30 fathoms deeper, but for want of funds were obliged to abandon the undertaking."

It is necessary to quote the above extract for this reason. The shareholders who have just ceased working sent out a cross-cut from the north lode, on which they mainly worked, 84 fathoms under adit, and 14 fathoms lower than the workings on the south lode, but at a point about 25 fathoms east of where Capt. Jennings reported so well of it in the 70, and in July this year when there was but 15 fathoms further to drive in the 84 end to come under the point referred to in the 70, and where Capt. Jennings left off, the work of the mine was brought to a standstill. A little more outlay and perseverance and a profitable lode might in all probability have been the result. The late workings have not solved Capt. Jennings' anticipations, but they have cleared the way, and made it easier for those who may take up the mine hereafter.

The writer has also a copy of a report made in 1856, confirming that of Captain Jennings. It bears the signatures of James Pope, of Wheel Basset; John Daw, of Carn Brea Mine; Thomas Glanville, of North Basset; and John Michell, of Grambler Mine; and accompanies a prospectus of the same date. The prospectus quaintly states:—"The report of the experienced mine agents which accompanies this prospectus, known as men of caution, never hasty, or over sanguine in their judgments, sufficiently guarantees that the ground comprised in this sett is well worthy of a vigorous and *bona fide* trial, and should be sufficient, without any remarks from the promoters, for again confidentially bringing this adventure before the public without any disguise of a new name, or any other reliance than upon the merits of the ground itself." The term "promoter" was in use even then, but he was not the rapacious individual of later date, as it is stated—"A sum of 200*l.* is appropriated to the promoters of this undertaking as an equivalent for their services in getting up the mine and for the cost of the grants, and it is believed that this small amount of remuneration will not be thought excessive."

What was done by the company of 1856 there is no record to show. But the sett had been some period in abeyance when in 1872 it was taken in hand by the late Mr. Matthew Greene, and worked by a Limited company in 15,000 shares of 30*s.* each, but they were not all issued. This company did no work on the old mine or south lode, but opened from surface on a new or north lode, of which very favourable opinions were entertained. A bunch of ore was met with at a shallow level, and about 2000*l.* worth sold. The want of a suitable engine for pumping, the necessary capital, and the decease of Mr. Greene in 1877, the company got into debt, and was wound-up in the Stannaries' Court. The mine and plant then passed by purchase from the Court into the hands of Mr. Laby, a large shareholder in the Limited company, and was by him transferred without profit, for the purchase-money only, to a second Limited company, the New Cathedral Copper and Tin Mining Company (Limited). This company, under the chairmanship of Mr. Laby, erected a 60-in. cylinder pumping-engine, now upon the mine, converting the Robey's engine hitherto in use for drawing purposes, and spent beyond the cost of purchase, in mining work, a sum of over 4000*l.* On the 20th of January, 1881, a very sad accident occurred. The men working in the 52 end west in blasting broke into a cross-cut, the existence of which was unknown, causing an influx of water which speedily filled the mine. This disaster caused the loss of eight lives. The enquiry that followed exonerated the officers from all blame, the oldest miners, and those born in the district, being unaware of any old workings going from the old to the north lode, the old mine lode at this depth being more than 100 fms. distant from the north lode. The result of the accident was that the old mine workings and the new were put into communication. The expense and delay caused by this accident led to the company being again dissolved, and re-organised as a Cost-book Company in 6000 shares, Mr. Laby becoming again, as in the former company, its Chairman and largest shareholder. Upon the engine being restarted the two lodes were drained simultaneously. The engine-shaft was again sunk on the north lode from the 64 to an 84 fm. level, 10 fms. lower than the workings on the south lode; a cross-cut was put out 46 fms., and an intersection effected. The south lode was found to be 4 to 6 ft. wide, of more than ordinary promise, producing rich stones of grey and yellow copper ore, and improving as driven on—a lode very like the other rich mines around. It is much to be regretted that this lode was not prosecuted a little further, or until it came under Capt. Jennings' working in the 70. The present company also drove their 50 fm. level east as a pioneer level, a distance of 88 fms. towards West Damsel, this level producing stones of good copper and also some tin. A small lot of the latter ore was about a year ago dressed and sold. The continuance of this

level would be a very good speculation, as West Damsel made its riches near Cathedral boundary. In addition to the lodes referred to, a very promising one within the sett is that known as Rawson's tin lode, a little east of the engine-shaft. Very little work has been done here of late; but the company now suspended about 3 years ago put some men on it, and found the lode composed of quartz, peach, and splendid stones of tin. Extensive workings made by the ancients were found in the roof of the adit level on this lode. This lode (and many others which traverse the sett) is in reserve for those who may take the mine in hand again. It would be worth reworking the mine to prove this tin lode by a cross-cut north from the 84 fm. level.

Cathedral Mine has offered many very fine cabinet specimens for collectors. The museum at Exeter has a very good collection from this mine of both tin and copper. There are no accounts existing to show the money expended by the old companies under Captain Jennings, on the south lode, but on the north lode on which the engine-shaft is sunk it would appear that since 1872 about 30,000*l.* has been spent in labour, plant, and materials; of this the Cost-book Company now giving up have contributed over 12,000*l.* in the last four years and a half. No shareholders have deserved success more than those of the Cathedral Mine Company, but "Tis not in mortals to command success" within any given time, as all engaged in mining know, or to control the exigencies of the time. And when, owing to the demands in the shape of calls upon their resources, some holders were compelled to relinquish, others, who would fain have continued, were obliged to give in. Captain Stephen Davey has been the active and energetic agent of the mine for the last three companies, and deservedly had the confidence and respect of the shareholders.

Within the limits of the sett is the well-known Gwennap Pit, which no tourist in the neighbourhood neglects to visit. This singular excavation has been used for open-air preaching for more than a century. It is sometimes called "Wesley's Cathedral," and it is supposed from this that Cathedral Mine took its name.

TREATMENT OF DRY AND BASE SILVER ORE.

(Continued from Page 983.)

Lixivation with Hyposulphite Solutions.—The lixiviation process with hyposulphite solutions is now entering into serious competition with amalgamation. It was first introduced in the United States in 1874, at Melrose, Cal., by the late Mr. G. Kuestel. Subsequently lixiviation works were erected at Galena, Nev., at Monitor, Cal., and at the Martin White Mill, Nev. All these establishments were on a small scale, and their existence was of short duration. The first successful introduction, on a large scale, was at the Silver King Mill, Arizona, by Mr. O. Hoffmann, in 1880. The next mill with lixiviation plant was the Bertrand, built at Geddes, Nev., in 1882, followed by the Mount Cory Mill, Nevada, in 1883. So much interest is manifested in the lixiviation process, and such radical improvements have recently been made in it by E. H. Russell, that a brief discussion of the subject will not be out of place. Those who wish more detailed information I will have to refer to a paper which is to appear in the transactions of the American Institute of Mining Engineers. In the lixiviation of silver ores by means of a hypsulphite solution, two difficulties have heretofore been met with, which have rendered the process inapplicable in many cases—(1) The difficulty of producing bullion free from lead; (2) the necessity of a very perfect chloridising roasting, since the hypsulphite solution acts only imperfectly upon metallic silver, and such of its combinations which have not been transformed into the chloride by the roasting process. In the amalgamation of roasted silver ores, bullion almost entirely free from lead is produced, if certain precautions are taken, even in case the ore contains a large percentage of lead minerals. If native silver occurs in the ore which is not entirely converted into chloride by roasting, this silver amalgamates readily. Silver compounds, too, which are not converted into chloride, are decomposed to a certain extent, and the silver is amalgamated, especially if the roasted ore contains soluble copper salts. Hence a larger percentage of silver is, in many cases, extracted by amalgamation than that shown to be present as chloride, according to the customary chlorination tests. Mr. Russell's improvements in lixiviation consist:—

- 1.—In a practical and cheap method of precipitating the lead by itself from the hyposulphite solution.
- 2.—In the application of a solution containing a double salt of sodic and cuprous hyposulphite, which reacts upon and dissolves silver compounds not soluble in sodium or calcium hyposulphite. He calls this solution the "extra-solution," to distinguish it from the ordinary sodium hyposulphite solution without copper.

Separation of Lead from a Hyposulphite Solution Containing Copper and Silver.—Mr. Russell discovered that lead can be completely precipitated from a hyposulphite solution by sodium carbonate as lead carbonate, while silver and copper remain in solution. In working on a large scale the commercial soda-ash is used for this purpose. An extra series of precipitating tanks has to be provided. The lead carbonate settles quickly, and the clear solution is decanted into the silver precipitating tanks where copper and silver are precipitated by sodium sulphide. The lead carbonate is collected and sold to smelting works.

The Treatment of the Ore by the Extra Solution.—If to a solution of sodium hyposulphite copper sulphate is added in the proportion of two of the former to one of the latter, the reagents completely decompose each other, a double salt of sodic and cuprous hyposulphite being formed. In case concentrated solutions have been used this double salt is precipitated as a canary-yellow powder. It is not easily soluble in water, but dissolves readily in a sodium hyposulphite solution of 2 per cent. concentration. A solution of this double salt exerts a most energetic decomposing and dissolving action upon metallic silver, silver sulphide, and combinations of silver with antimony and arsenic. If a charge of roasted ore is first treated with an ordinary hyposulphite solution to extract the silver chloride, and subsequently with extra solution, an additional amount of silver is extracted, which by using the old method only would have been lost in the tailings. Experiments carried out at the Ontario Mill, Utah, show with well chloridised ores a difference of 4½ per cent. in favour of Russell's process, and from 2 to 3 per cent. more silver extracted than by amalgamation. But with ores of low chlorination the difference may arise above 30 per cent. in favour of the extra solution. In applying the extra solution it is used for several charges in succession before the silver is precipitated from it, together with copper, by sodium sulphide.

Improved Process for Treating the Sulphides.—It cannot be denied that the handling of the sulphides is a weak point in the lixiviation process. In roasting such rich products a mechanical loss, and a loss in silver by volatilisation, cannot be avoided. The by-product of rich copper matte obtained in melting the roasted sulphides is also undesirable. The following process is designed to obviate existing difficulties. The sulphides are dissolved without previous drying in sulphuric acid, with addition of nitre. After complete decomposition has taken place the silver is precipitated from the solution by metallic copper. From the copper solution copper sulphate is obtained by evaporation and crystallisation. A great saving in nitre can be effected if the nitric oxide escaping in this process is according to well-known chemical

reaction, reconverted into nitric and nitrous acid, which are absorbed by sulphuric acid. This nitrated acid is then used for oxidising fresh charges of sulphides.

Amalgamation and Lixivation by Russell's Process Compared. —Without entering into detailed calculations, I will only point out the principal items which are in favour of lixiviation, as compared with amalgamation.

1.—In amalgamation the fineness to which ore has to be crushed is determined by the capacity of the settler to work off coarse sands without material loss of quicksilver. It is not practicable to use a coarser screen than No. 30, if the crushing is done by stamps. This is almost equivalent to sifting through a No. 40 revolving screen, if the crushing is done by rolls. In lixiviation pulverising as coarse as possible is desirable. The limit of coarseness is determined by the roasting process. It depends upon the character of the ore, and principally upon the manner in which the silver-bearing minerals are disseminated in the gangue.

2.—The original cost of the lixiviation plant is much lower than that of pans and settlers. A further saving is effected by a reduction in size of the engines and boilers, the power required for pumping, solutions, &c., being mere nominal.

3.—In amalgamation the pans and settlers consume not less than 1 1/2-horse-power per 24 hours for each ton of ore.

4.—In large mills the quantity of quicksilver in rotation represents a capital of from \$30,000 to \$40,000, while the stock of chemicals required for lixiviation does not cost more than one-tenth of this amount.

5.—With Russell's improvements the percentage of silver extracted is much higher than by amalgamation.

6.—Lixivation by Russell's process requires a less careful chloridising roasting. That in some cases salt may be entirely dispensed with is indicated by experiments made at the Ontario Mill.

7.—The value of the lost quicksilver, and cost in wear and tear of the pans and settlers, amounts to more than that of the chemicals consumed in the lixiviation process.

8.—The lixiviation process permits the extraction of copper and lead as valuable by-products.

9.—The sulphides from the lixiviation process can be much easier converted into fine bars than the bullion obtained in amalgamation.

10.—Amalgamation is invariably injurious to the labourer's health.

In view of these advantages, coupled with a reduction of the cost in crushing by using rolls in place of stamps, we stand before a revolution in the reduction of silver ores, to which this process can be applied, rarely equalled in the history of metallurgy. It is fair to presume that in lixiviation mills of large capacity, with rolls, the cost of producing silver will be lessened nearly one-half, as compared with the present system of stamps and amalgamation, and in some cases the saving will be even greater.

American Mining Notes.

(FROM OUR OWN CORRESPONDENT.)

NEW YORK, AUGUST 20.

During my absence from the busy metropolis the general business situation has undergone some change. Wall-street, in which formations the "bulls" with difficulty kept the "bears" at bay, has witnessed one of its periodical sensations, and the public is asked to believe to-day in an enhancement in the value of properties which a few years since were cried down either as worthless or as fast drifting in that direction. It takes some courage when nothing but the wonderful future is spoken of to assert that the present outlook does not warrant any extravagant expectations for the future. A boom manipulated by great capitalists and speculators is one thing, and the betterment in the conditions of general business is quite another. Our daily Press, it is said to say, seems largely prompted to overdraw, either by the love of the sensational or by more sordid motives, and it is only when the opinions of our business men are privately obtained that the true picture is revealed. Such as it has been unfolded to your correspondent it shows a brighter aspect unquestionably, but as yet the signs of improvement are scattered only, and are generally faint. Possibly the long period of waiting to discover them has bred a joy at their coming which leads to overestimation. It is certain that the speculative spirit has been aroused, and that in itself augurs well for the future—provided that the matter is not overdrawn. As yet the general public has only taken a very insignificant share in the movement, and until it does no long well-sustained advance can be reached. Mining, of course, will be the last to benefit from the revival, such as it is.

Iron has not yet moved perceptibly, though in some branches it does not as abjectly and as promptly make concessions. Coal continues distressingly dull. Lead, held at 4-25 c. artificially by a speculator, who has as yet not sold any of his surplus, because buyers are well supplied. The only effect which this Cornish movement is likely to have is to set every Western miner to driving his mine as fast as possible, and thus to counteract a decline in the production which might otherwise have taken place. Copper is quiet at 11 1/2 c. for Lake, the negotiations between the Calumet and Hecla not having come to an issue as yet. The zinc combination in Europe is looked at with some anxiety here. We have learned by experience that this generally means that an unsaleable surplus is crowded into this market if there is any chance for it.

Our steel-rail manufacturers have imitated their European confreres in forming a combination for the year 1886, by an agreement to restrict production. The allotment, I understand, is as follows, on the basis that the market will take about 775,000 tons during that year:—

Edgar Thomson (Carnegie)	Tons 900,000
North Chicago Rolling Mill Company	90,000
Bethlehem Iron Company	90,000
Pennsylvania Steel Company	90,000
Joliet Steel Company	75,000
Cambria Iron Company	75,000
Lochawanna Coal and Iron Company	75,000
Scranton Steel Company	55,000
Cleveland Rolling Mill Company	45,000
Union Steel Company	45,000
Albany and Kenschlaer Iron and Steel Company	30,000
Worcester Steel Company	15,000

Total

775,000
It remains to be seen how this scheme will work. Some of the mills have been shabbily treated; others have obtained more than was due to them. There are, therefore, in the allotment all the elements of strife should circumstances favour fighting, which, it is sincerely hoped, they will not do. Stockholders and bondholders of the Colorado Coal and Iron Company, of which there are many in England, may perhaps be surprised that their company is not one of the number of those in this combination. The fact is, that so far as the Bessemer works of that concern is concerned it is hopelessly out of the race, and even if the sanguine hope of the railmakers that they will be able to command \$30 at the Eastern Mill in 1886 is realised, the Colorado Company will be unable to compete by many dollars a ton. The present and

the future of that company depends upon the demand in the Far West for its coal and coke, and upon the freight arrangements made. The Bessemer plant is a dead investment.

Through the courtesy of Mr. Albert Williams, jun., chief of the Bureau of Technology of the United States Geological Survey, I have been given access to advance sheets of the review of the copper industry of this country in 1883 and 1884, by Mr. C. Kirchhoff, jun. The report was completed in February of this year, and through the delay in its publication, in spite of the energetic efforts of Mr. Williams, much of its contents has lost its freshness. Your correspondent, however, believes that some of the data may still possess some interest to English readers. Mr. Kirchhoff has taken up the great question of the capacity of the different mines to outlive low prices. So far as the Lake Superior mines are concerned, he states that it is a comparatively easy matter to arrive at the proportion of the yield in 1883 and 1884, which has resulted in a profit to the mines. Out of the total product in 1883 of 59,702,404 lbs., about 49,500,000 lbs., or 83 per cent., were produced at figures below the market rates, while in 1884 the figures may be placed at 69,250,000 lbs. and 54,000,000 lbs. respectively, or nearly 78 per cent., assuming the average price for the year to have been 11 1/2, which is rather liberal. It is stated by the same authority that out of the total product of Montana certainly a very large percentage yielded a profit, and that of the whole of the make of Arizona not less than 90 per cent. was placed on the market in 1884 at remunerative rates. "It is not held, however, that these figures represent the maximum figure, because there are a number of enterprises, great and small, concerning which no data have been available. Viewing it in a different light, it may be said that out of the total output in the United States in 1884, fully 70 per cent. can be put on the market at 11 1/2 cents for Lake Superior copper, and 10 1/2 cents for other kinds. These prices are very low as an average of the price realised in 1884." It may be added, however, that thus far they have been probably slightly above the average for 1885, and it is not surprising, therefore, that even mines which can prefer to keep their reserves intact rather than to exhaust them in trying to secure a new dollar for an old one. Mr. Kirchhoff reports as follows the total copper production in the United States, by States and Territories, during the years 1882, 1883, and 1884, during which the figures were collected by him.

Total Copper Production in the United States in 1882, 1883, and 1884.

Source.	1882. Pounds.	1883. Pounds.	1884. Pounds.
Lake Superior	56,982,765	59,702,404	69,250,000
Arizona	17,984,415	23,874,963	26,734,345
Montana	9,058,284	24,664,346	40,612,783
New Mexico	869,498	823,511	59,450
California	826,695	1,600,862	876,166
Colorado	1,494,000	1,152,652	2,013,125
Utah	605,880	341,885	265,526
Wyoming	100,000	962,468	—
Nevada	350,000	288,077	100,000
Idaho	—	—	46,667
Missouri	294,695	260,306	230,000
Maine and New Hampshire	290,000	212,124	249,018
Vermont	1,265,000	400,000	655,405
Southern States	400,000	395,175	317,711
Middle States	—	64,400	2,114
Desilverisers, &c.	125,000	782,880	950,870
Total domestic copper ..	90,646,232	115,526,053	142,363,180
From imported pyrites ..	1,000,000	1,625,742	2,858,754

Total, including copper from imported pyrites 91,646,232 .. 117,151,795 .. 145,221,934

He adds that out of the whole domestic product of 1883 of 115,526,053 lbs. of copper, no less than 92,500,000 lbs. were converted into ingot copper in the United States, and that in 1884 the quantity was 108,250,000 lbs. out of a total product of 142,363,180 lbs., a decline in the percentage of the total treated in home works being due to larger shipments of ore and furnace materials to Europe. Mr. Kirchhoff reviews the development of the industry in the different districts, goes over the course of the markets in 1883 and 1884, and the status of copper mining in the leading producing countries in the world.

Law Intelligence.

BIRMINGHAM ASSIZES.—AUGUST 28-29.

(Before Mr. Justice DAY.)

DOWNES V. THE FALCON ENGINE-WORKS.

This action, in which Mr. John Downes, Milk Street, Birmingham, sought to recover from the proprietors of the Falcon Engine-Works (Limited), of Loughborough and London, 20,000l. damages, for alleged infringement of plaintiffs' patented improvements for tramways and stationary engines, was resumed. Mr. Stubbins and Mr. Daniel (instructed by Mr. Dyson) were for the plaintiff, and Mr. Lawrence, Q.C., M.P., and Mr. Bower (instructed by Messrs. Webb and Co., London) for the defendants.—The cross-examination of John Millward was continued. Witness said he believed that an intelligent workman would be able to construct an engine from the plaintiff's specifications. He did not consider that plaintiff's invention had been anticipated. He was acquainted with the specifications of Joseph Beattie, Sharp and Collett, William Warkin, John Bishop, and Sir Frederick Bramwell; but he did not think they were substantially similar to the plaintiffs'.—Samuel Owen, C.E., said that he had acquainted himself with the construction of the defendants' engines, and that the drawings which had been produced gave a correct representation of them.—Thomas Rigby, mechanical and consulting engineer, London, said he was acquainted with plaintiff's invention, and had inspected defendants' engine at the International Inventions Exhibition. He considered the defendants' was an infringement of the design of plaintiff's engine. The plaintiff's engine was new, inasmuch as the exhaust ports were connected with a series of pipes, further, there were a series of tanks connected with each other by pipes through which the exhaust steam was taken until it was completely "killed," the object being to deaden the pulsation of the engine. These points were new at the date of the plaintiff's patent. He had carefully gone through all the alleged anticipations named, but there was nothing in them which would have the effect of deadening the pulsation of the engine, which was the invention claimed by the plaintiff.—This was the plaintiff's case.—For the defence, Mr. Norman Scott Russell, C.E., and general manager and engineer to the defendants, was called, and stated that he considered the plaintiff's engines to be different from the defendants' in several respects. It would be impossible, he thought, to construct an engine from Downes' specifications and drawings.—Sir Frederick Bramwell said that he had seen plaintiff's and also the defendants' engines. The plaintiff's notion for constructing a noiseless engine was entirely that of water condensation, and the defendants' was that of air condensation. After reading the plaintiff's specification he was of opinion that plaintiff arrogated to himself the position of being the first man who had ever condensed exhaust steam. This was not so. In his opinion there was a great difference between the plaintiff's and the defendants' engines with respect to the condensing and utilisation of exhaust steam. There were several noiseless and smokeless engines being run before 1872.—By Mr. Stubbins: Have you ever known any

engine on the same principle as Downes' which was travelling? Witness: I don't know what his principle is.—Not looking at the specification? No, I cannot see any principle in it. If the plaintiff claimed to be the first person to condense exhaust steam, he was quite wrong, for that was done by James Watt, and has been done continuously since. Another claim was made by the plaintiff under his specification to convey the exhaust steam and condensed water from the condensing tank to the boiler of the engine. This was wholly impracticable. A third claim was to convey the exhaust steam, or a mixture of exhaust steam and heated air, to the furnace or smoke-box of the engine, for the purpose of promoting the draught of the furnace and the economising of the fuel therein, and preventing smoke. But the plaintiff was, with respect to this claim, in a dilemma, for the method adopted by the defendants was exactly like that of Flude's patent, taken out in 1838, and if the defendants had infringed the plaintiff's patent, then that patent was itself but a copy of Flude's.

This evidence was supported by the testimony of Dr. Hopkinson. Mr. Tomlinson, the resident engineer to the Metropolitan Railway Company, said that since 1864 the engines of the company had been built like the defendants' engine, except as to the air condenser. They would run 3 miles without emitting visible steam.

Without hearing counsel for the defendants judgment was given for them with costs.

Mr. Justice DAY said he had come to the conclusion beyond all doubt that the plaintiff's patent was for a water condensing apparatus and the defendants' engine was primarily an air condenser. The defendants' engine was not an infringement of the plaintiff's engine. Assuming the validity of the plaintiff's patent, the defendants had not infringed it. He had also come to the conclusion with respect to the validity of the plaintiff's patent, that whether with regard to novelty or utility it could not be supported. It could not be considered new as to its parts or as to its combination. It was not a new invention. With respect to its novelty, it seemed to fall so far as the specified structure was concerned.

HIGH COURT OF JUSTICE.

CHANCERY DIVISION.

(Before Mr. Justice A. L. SMITH, sitting as Vacation Judge.)

SEPTEMBER 3.

IN RE THE WEST CALLAO GOLD MINING COMPANY (LIMITED).

Mr. Marten, Q.C., and Mr. Stanley Boulter appeared in support of a petition presented by Mr. Charles E. Winwood Smith, a creditor to the amount of 1848l. 12s. 3d., to wind-up the company. Mr. Smith had acted as manager of the company in Venezuela during 1883 and 1884, at a salary of 1000l. a year, payable monthly. He asked that the company might be wound-up, on the ground that he was unable to obtain the arrears of his salary, and the company was insolvent.

Mr. H. T. Eve, for the company, denied that there was any agreement as to the salary; the company was not insolvent, as 9994l. remained unpaid on shares. The petition was not *bona fide*, and should be dismissed with costs. An agreement had been entered into with the New Callao Company whereby the West Callao Company lent their machinery, and the New Callao Company advanced funds for working the mines.

Mr. SALT, for creditors to the amount of 40,000l., opposed.

Mr. Justice A. L. SMITH said that the petition was presented under section 80 of the Companies Act, 1862, and, as he understood the law, the petitioner had first to prove that he was a creditor for a sum exceeding 50l.; and, secondly, that the company was insolvent. In his Lordship's opinion, the petitioner had proved that 400l. at least was due to him for salary. Then as to the insolvency in June, 1884. Mr. F. J. Warner, the secretary, wrote to Smith, saying, "We have hardly a shot left in our locker, and we shall hardly be able to pay your salary; you had better look out for yourself on your side of the water." There is no evidence that the company's condition had improved, and there was not evidence that 9994l. was due in respect of shares; the secretary, in his cross-examination, did not mention that sum as an asset of the company. The company was clearly insolvent. There must be the usual winding-up order.

IN RE THE NEW CALLAO COMPANY (LIMITED).

Mr. Justice A. L. SMITH made the usual order for winding up this company, upon similar grounds to those upon which he decided the last case.

Mr. Marten, Q.C., Mr. Stanley Boulter, Mr. H. T. Eve, and Mr. Salt were the counsel appearing.

A COLLIERY OFFICIAL COMMITTED

At the West Riding Police Court, Wakefield, John Broadhead, deputy at Messrs. Robert Holliday and Son's Colliery, East Ardsley, was charged with having committed a serious breach of the Mines Regulation Act by not making a true report as to that part of the mine of which he had charge, and by not withdrawing the men on the discovery of inflammable gas.

Mr. Gill prosecuted on behalf of the Home Department, and from a statement made by him, and corroborated by a miner named George Hopwood, and Mr. Cyrrus Holliday, the certified manager, it appeared that on the morning of August 4th the defendant went into the working place of two miners named George Hopwood and George Lambert to make his usual inspection, and although he found inflammable gas there, he did not order the withdrawal of the men from that part of the pit. He furthermore committed a breach of the provisions of the Act by falsely reporting in his book that the ventilation was good, and that the pit was safe and free from gas. Shortly after defendant's visit an explosion of gas occurred, and Lambert was so seriously injured that he died a few days afterwards. Fortunately the other man (Hopwood), who now appeared as a witness, had moved to another part of the workings before the explosion occurred, and so saved his life.

The defendant, who admitted his guilt, and pleaded to be leniently dealt with, was committed by the Bench without the option of a fine for two months' imprisonment, with hard labour, being also ordered to pay the whole of the costs of the case.

At the Wolverhampton Police Court, on August 21, Isaac Onions (owner) and William Groves, certified manager of the Wallbutts Colliery, Bilston, were charged with having committed offences under the Mines Regulation Act. Mr. Walker prosecuted on behalf of the Secretary of State, and Mr. R. A. Wilcock defended.—For the prosecution it was stated that Mr. Pickering, the Assistant Inspector of Mines, visited the colliery on the 19th June, and found that the up-cast-shaft was on fire. Fourteen men were employed in the pit, but there was no second outlet available in case an accident should occur. It was also found that the top inset in the winding-shaft had not been fenced, as required by Act of Parliament. On again visiting the pit, on the 27th June, Mr. Pickering found that the tops of the shaft of the thick coal pit and of the gin pit were not properly fenced, and also that the special rules and an abstract of the Act had not been placed in a conspicuous position. It was also found that no register of the names and ages of young persons, whose working hours were regulated by the Act, had been kept, and there was also a breach of the 31st general rule, which required that certain book of the colliery should be kept in the office. On the 3rd July, Mr. Pickering found that no report of the examination of the gin pit had been made, and also that no register had been kept of the names of the young persons employed. The matter was afterwards reported to the Secretary of State, who instructed that proceedings should be taken.—For the defence, Mr. Wilcock stated that Mr. Onions had been connected with collieries for the past 12 years, and that on the 19th June, when a small fire occurred in the shaft, he used every endeavour to put it out.—The Deputy-Stipendiary (Mr. Neville) said that if he were to inflict the full penalty for each offence the colliery would have to be stopped. The offences were of a very serious nature, and the defendants had simply set the Act of Parliament at defiance.—Mr. Onions was fined 5s. and costs for each offence, making 11l. 6s. 3d. in all.—The Deputy-Stipendiary remarked that it was a rare to employ a certified manager who would not see that the provisions of the Act were observed, and he imposed a small fine upon Mr. Groves of 1s. and costs in each case, which amounted altogether of 8l. 8s. 9d.

Many indications exist at the range of values now ruling here that American mines can produce copper except at a loss. Efforts have been made to bring about a mutual curtailment of production on the part of the chief producers of the world, but this has failed. The only hope appears to be the closing of those mines that cannot produce copper to a profit with Chile. This will take time, but a commencement has already been made in this direction. The arrivals from Chile during the month have been 1545 and the deliveries to the United States 1400 tons, respectively. The arrivals from the United States have been 185 tons bars, 1000 tons, 1000 tons, matte, and 469 ore, equal to about 1387 tons fine copper, and in France 535

EDINBURGH.—Messrs. THOMAS MILLER AND SONS, stock and share brokers, Princes-street, write under date September 2:—The railway market has been firm since last report, but there has been a relapse to-day. Caledonian rose to 103½ on the announcement of the dividend at the same rate as the first half of last year, but has since declined to 102½. North British at the same time advanced to 92½, but on the heavy decrease in the traffic fell this afternoon to 91. Grand Trunk stocks and Americans have been fluctuating. Bank shares show little alteration. Oil shares show few changes of any importance, West Lothians have gone down from 7½ to 7¾. Arizona Trust fully paid have been done at 30s. In insurance Alliance Fire have risen from 35 to 36; Caledonian from 20½ to 20¾; Liverpool, London, and Globe from 25½ to 26½; North British and Mercantile from 31 1-16 to 31½; Northern from 42 to 42½; Scottish Accident from 38s. to 39s. 6d.; Scottish Life from 22s. 6d. to 23s.; Scottish Union A from 55s. to 55s. 6d.; Standard Life from 50½ to 52; Scottish Metropolitan Life have declined from 35s. 6d. to 35s.

	July 31, 1885.	August 1, 1885.	August 31, 1884.
Straits and Australian, spot ....Tons	5,639	6,276	4,607
" " landing	486	431	255
Straits, afloat. "	2,250	1,680	1,355
Australian afloat	1,078	1,198	1,333
Banca, on warrants	1,552	1,116	973
Billiton, spot	547	611	1,381
" afloat	534	913	1,102
Australian tin in Holland .....	.....	.....	.....
Stocks in America, including quantity afloat	1,100	1,370	1,730
Total	13,694	13,836	13,236
Prices of Straits and Australian	£94 5	£91 5	£81 10
Deliveries during month in London ..	736	927	1,665
" " Holland ..	717	624	740
Total	1,453	1,581	2,405
Banca in Trading Company's hands and afloat, 324 tons.			

Messrs. JAMES LEWIS and SONS, Liverpool, write under date September 1:—Copper. The price of Chili bars has been largely influenced by the fluctuations in the Chili exchange. Although the charters on the 1st ultimo were advanced as 2700 tons fine, bars advanced 5s. to 42s. 7d. the exchange showing an improvement of 3d. The exchange falling to 42s. 7d. on the 28th ultimo, the bars advanced 1s. to 42s. 7d. to 42s. 11d. on the 7th ultimo. Large purchases of both cash and forward bars being made by one firm on the 18th about 850 tons exchanged hands up to 43s. 15s. cash and 44s. 5s. for three months prompt. This advance, however, was quickly lost, and some anxiety being displayed to realise values rapidly declined until 42s. 7s. 6d. was accepted for cash on the 28th—the lowest price on record. This figure caused considerable buying, and about 800 tons were sold on the 28th and 29th at 42s. 7s. 6d. to 42s. 10s. cash, and 19s. more for delivery in London. The above month's trade closing at 42s. 10s. 6d. for delivery in London and 42s. 10s. 6d. for three months.

To-day the charters for the fortnight are cable at 2100 tons, making 3000 tons for the month, and exchange is 2s. 3d. Much is being said with regard to the large quantities of copper at present available; the visible supply to day is, however, 1345 tons less than the average visible supply during the year 1881 (55,870 tons), when the average price of bars was 6s. 1½d. per ton, or 19c. more than the present value. The chief cause militating against an advance in values is the uncertainty prevailing with regard to American supplies and the mode in which they will be disposed of. The latter will respond to the demand, which depresses the price, but the former will not. There are, however,

Messrs. THOMAS J. POPE and BROTHERS, of New York, write under date August 21:—**TIN:** The movement has received a check, which is considered only temporary. We quote prices to-day with a very strong market at 21 1/2 to 21 3/4 c. ex stores. The stocks are very light. In Europe the market diminished largely during the past year.—**LEAD:** In Europe the market is very firm, and has been maintaining, with a checked but fair demand. Prices are firm, with an uncertain tendency for the future. Store lots are quotable 4 25 to 4 30. Buyers as a general thing evince a determination to keep out of the market, believing that prices are buoyed up to an artificial extent by those operating in the metal, and holders assert their ability to carry all the lead which they can control, and get prices in the near future equal to 4 1/4 c. The fight goes on between consumer and speculator, and we suppose will end, as such things usually do, in the maintenance of price for a season, and then a decline to nominal values. Sales of large quantities have been made in the West at prices equivalent to 4 1/2

Totals for United Kingdom ... 95 86 200
The number of Bills of Sale published in England and Wales for the week ending August 29 was 272. The number in the corresponding week of last year was 226, showing an increase of 46, being a net increase in 1885, to date, of 512. The number published in Ireland for the same week was 11. The number in the corresponding week of last year was 5, showing an increase of 6, being a net increase in 1885, to date, of 14.—*Kemp's Mercantile Gazette.*

THE MINING EXHIBITION AT GLASGOW.

On Tuesday last, under the auspices of the Mining Institute of Scotland, an exhibition of colliery and general mining machinery, appliances, and plant was opened under most favourable circumstances. Although a number of the exhibitors at Glasgow have stands at the Inventories Exhibition, at South Kensington, it is probable that the mining public generally North of the Tweed has not had an opportunity for visiting the South, and will, therefore, patronise the smaller but still eminently practical local show. It was a pleasing surprise in connection with the opening ceremony, on Tuesday, to find much order and general completeness—results due to the labours of Mr. James S. Dixon, President of the Institute, and the joint secretaries, Messrs. James Barrowman, Robert L. Galloway, and Robert T. Moore.

At noon on Tuesday Col. J. G. C. HAMILTON, M.P. of Dalzell, performed the opening ceremony in presence of a large company of ladies and gentlemen. Amongst those present were Baines, Bertram, Neil, and Shaw; Councillors Mitchell, Struthers, Hamilton, Gardiner, Wallace, Logan, Duncan, Bowman, and M'Lellan; Mr. James S. Dixon, President of the Institute; Mr. Ralph Moore and Mr. Alexander, Inspectors of Mines; Mr. J. T. Robson and Mr. J. M. Ronaldson, Assistant Inspectors; Colonel Austin Hamilton; Mr. John Watson, of Earnock; Mr. John Wilson, coalmaster; ex-Provost Black, Airdrie; Mr. Robertson, mining engineer; Mr. John Nicol, City Chamberlain; Mr. Parker Smith, of Jordanhill; the Editor of the *Mining Journal*, and a number of colliery masters and managers.

Mr. J. S. Dixon said that some months ago, at a meeting of their Institute, there was a discussion of a somewhat desultory nature as to the merits of hutches—these little wagons they saw for carrying coals underground. Some one suggested—he thought Mr. Aitken, of Falkirk—that the Institute might send hutches from the various collieries to some place, so that the merits of each might be investigated and reported upon. That suggestion took root, and now it had grown into the Exhibition they were now about to open. The Institute appointed a general committee, who proposed a guarantee fund, which was heartily supported by the iron and coal masters. An executive committee was appointed, who had carried out the details, and upon them and upon the secretaries the burden of this work had fallen. (Applause.) They were greatly indebted to the committee, to the secretaries, and to the exhibitors for coming forward as they had done. In the unavoidable absence of Lord Provost M'Onie, who consented to become Chairman of the general committee, Colonel Hamilton had kindly consented to open the exhibition. (Applause.) He was most fitted to do so, because not only of his being a member of the Institute, but from his position in the country, and his interest in the coal and iron industries. (Applause.) He then presented Colonel Hamilton with a handsomely-bound catalogue of the exhibits, and called upon him to open the Exhibition.

Colonel HAMILTON said that in the unavoidable absence of the Lord Provost, who had been called to Balmoral, he had been asked to say a few words in opening the Exhibition. Except as a matter of form, it was scarcely necessary that he should do so, for if they looked round about it spoke sufficient for itself. They would see that it was essentially practical and instructive. They had now had a good deal of experience of exhibitions, and they seemed to have two objects—amusement and instruction. As to the former no exhibition could attempt to compete with the great show at Kensington. But they were to have the electric light and a band, and he hoped the ladies of Glasgow would follow the example of their sisters in London and give it their patronage, especially as they will have the unique advantage of being able to ride in a coal hutch without going down the pit. (Applause.) The chief object, however, was instruction, as became this great commercial town. The Mining Institute of Scotland being anxious to give a cordial welcome to that most important body, the Iron and Steel Institute of Great Britain, which was now paying a visit to Glasgow, had chosen this day to open this Exhibition, in which even they, he believed, would find something new and instructive. (Applause.) The executive committee and their secretaries had brought together a collection which well illustrated the present condition of Scotch mining. Few industries could show such progress, or had given rise to so much inventive talent. Some of them could remember the way in which mines were worked 30 or 40 years ago. But how great the change had been, and he believed there was even a greater change to be looked forward to. There were, no doubt, inventors present, who, if they liked to build castles in the air, might amuse themselves by imagining how some day the engine at the pit mouth, besides that necessary duty of raising coal and water, would produce electricity which, conveyed to every part of the mine, would not only light it and work boring, cutting, and hauling machines, but place the miner in the position of a highly skilled mechanic. (Applause.) Perhaps even the coal pit might provide light and heat for the whole surrounding country. They might possibly find some invention in this direction already in this building, but whether or not they would, he was sure, find much that was interesting, and feel grateful to the gentlemen who had taken pains to bring together such a magnificent collection. (Applause.) He begged to declare the Exhibition open.

Mr. ALEXANDER proposed a vote of thanks to Col. Hamilton for opening the Exhibition—the first connected with the Institute, but not, he hoped, the last.

Col. HAMILTON acknowledged the compliment, and proposed a vote of thanks to the secretaries.

The opening proceedings then terminated.

The exhibition is purely technical, all the exhibits being intimately related to the subject which it is intended to illustrate. The major part are deposited in the drill halls, but the adjoining ground, to the extent of about 5000 square yards, has been enclosed and utilised for such of the exhibits as do not require to be protected from the weather. There are two entrances to the exhibition grounds, one from the Great Western Road and the other from West Princes-street. On the oblong piece of ground within the former entrance the haulage system, which extends 10 miles through the underground workings of Cadzow Colliery, near Hamilton, is seen in operation. The rails are 208 yards in length, and on them will be run by means of an endless wire rope, six hutches—similar to those used for conveying coal from the workings to the foot of the shaft—accompanied by a bogey with brake and connecting gear. Passengers are carried at a charge of one penny in three of the hutches, three persons being accommodated with seats in each hutch. Suspended from posts alongside the line are two wires, which, by being simply pressed together by the occupant of the hutch, ring a signal bell in the engine-house. As in the case of cable tramways on the streets of a city the rope is continually in revolution, and the hutches are set in motion or stopped by an apparatus on the bogey which either grips or lets go the rope as required. The motive power is supplied by a pair of coupled haulage engines, with reversing link motion, constructed by Kesson and Campbell, Hamilton and Glasgow. The steam required for this and the other machinery in the grounds is obtained from a duplex furnace steam boiler by Penman and Co., Glasgow. Alongside the engine is the "Capell" double-power mine ventilator or fan, shown in operation by Messrs. Richard Lloyd and Co., of Birmingham, the sole manufacturers for Great Britain. It is claimed for these fans that at a given blade tip speed they will give superior results to the Guibal fans in volume and effective water gauge; and that size for size they are three times as powerful as any open ventilators now in use in colliery ventilation. At the eastern exterior of the halls is a working model of the reciprocating pumps

invented by John Morison, agent for the Marquis of Lothian's Newbattle Collieries, Dalkeith, and now exhibited for the first time. The pumps are used where power requires to be transmitted to a distance down inclines or to dip workings. The medium of transmission is wire ropes, which can be extended to any distance, and the pressure of water in a compensation column causes the back stroke. Grant, Ritchie, and Co., Kilmarnock, exhibit a patent wire rope clip pulley and friction clutch, a coal-cutting machine, also a set of Moore's patent hydraulic pumps and engine. One of the latter is used by the Fife Coal Company, at Leven, and two by the Broxburn Oil Company in their shale pits at Broxburn. The power is transmitted from the engine on the surface to the pumps by means of two columns of water, which may be conveyed in pipes to any distance. An exhibit that attracts considerable attention is a wooden shaft raised in the air, and having suspended in it two full-sized, double-decked cages, with two loaded and two empty hutches in them. Flanking the shaft, and also exhibited by the Carron Company, Falkirk, is an automatic tipping machine with a loaded hutch on it, and alongside it is a weighing machine. John Galloway, Ayr, has varieties of coal-cutting machines, and M'Pherson's safety gate for mid-shaft workings. Clarkson Brothers, Glasgow, exhibit the "Champion" direct double-acting ram or bucket steam pump, used for feeding boilers with hot or cold water, also as a fire-engine. Contiguous to it they have a Syntex gas-engine suitable for light work. Dickson and Mann, Armadale, show steel hutches on wheels; and John Watson has a collection of hutches and other appliances, as used at Earnock Colliery, Hamilton. The Bent Colliery Company, Hamilton, and the Clyde Coal Company, of the same town, exhibit hutches, &c., from their collieries; Joseph A. Jeffrey, Ohio, U.S.A., exhibits a coal-cutting machine and a coal-drill; while Dick and Stevenson, Airdrie, have one of the latter gentleman's patent multiple furnace water tube boilers for being fired with the spent gases from an ordinary puddling furnace. At the extreme west of the enclosure are sections of workable minerals from the Scotch coal fields, showing the relative positions of upper coal, limestone, and lower coal series in Lanarkshire, Fifeshire, and Edinburghshire. The sections are shown in the order of the strata, Lanarkshire in the rear, then an intermediate section from Alloa, Bathgate, Wilsontown, and Lesmahagow, followed by Fifeshire and Edinburghshire. The seam nearest the surface in Lanarkshire was the Palacecraig ironstone, located in the neighbourhood of Coatbridge; but, as it has been worked out, no section of it has been procured for exhibition. This seam was only 1 ft. in thickness. The thickest seam in the county is that of the Camps lime, which measures 40 ft., the Dunnet shale is 12 ft., the Auldton limestone 10 ft. 9 in., and the Ell coal, worked by the Cadzow Coal Company, Hamilton, 7 ft. 6 in. thick. The thickest coal seam in Scotland is that of the Dysart Main coal, which is 21 ft. thick, but the committee have been unable to obtain a section.

Entering the large hall and turning to the left, is the stand of James White, Glasgow, where, among various instruments relating to the surveying department of mining, is an electric bell that can be rung through 3 miles of galvanised wire with one cell of a battery. Adjoining it are the exhibits of the Glenfield Company, Kilmarnock, comprising valves of various descriptions, a pillar fountain as used for colliery villages, a water engine, and a recorder with clock and drum, giving a diagram of blast pressure. The Glasgow Gas Engine Company show one of the John Magee patent vertical gas engines, and Dron and Lawson, Glasgow, various screwing machines. The latter firm are also the constructors of two patent hydraulic pumps exhibited by David Johnston, Glasgow. The novelty of these pumps is that they work without fuel, attendance, or lubricant. Their principle is very simple. The water falling down the shaft is collected on a higher level than the pump, to which it is led by means of a pipe. The inflow works an engine, which pumps the water out of the lower workings. Adjoining it is an artificial waterfall, half-hidden among ferns and heather, showing the quantity of water which is raised. Alongside is a smaller-sized pump by the same patentees, adapted for sinking docks. These pumps form one of the most interesting features in the hall and are worth careful examination, being cheap, portable, simple in design and effectual in operation. Crossley Brothers exhibit in operation a 5-man power vertical "Otto" gas engine, suitable for purposes where only a limited amount of work is required. The general success achieved by Crossley Brothers with the "Otto" shows no signs of abatement. Wherever these engines are exhibited we were told orders are sure to follow. Ranged on the neighbouring stand, the Sugar Refiners' Appliances Company, Glasgow, show samples of Brown coal from England, Ireland, Germany, and America, used in sugar refining. The St. Mungo Chemical Company have an interesting collection of specimens of products of shale and coal, from the tar up to pigments for artistic work, made from the aniline dyes. The Carbon Cement Company, Glasgow, have samples of their boiler and pipe covering cement to prevent radiation of heat, also a boiler fluid, a new substance extracted from seaweed for removing incrustation. Tangyes Limited, Birmingham, devote a large space to their machinery, which covers one of the largest and most prominent spaces in the hall. Prominence is given to the various pumps for which this firm are celebrated. Archibald Baird and Son show numerous colliery specialities manufactured by them. Dynamite has attained such celebrity during recent years that visitors will be interested in the stand of Hunter and Fotheringham, Glasgow, where there are dynamite, tonite, and gunpowder cartridges, as manufactured by the Rhenish Dynamite Company of Opladen, near Cologne, Prussia, the Cotton Powder Company, &c. There is, however, no danger of an explosion, as, though the cartridges are perfect in form, colour and general appearance, they are only dummies. The same firm also shows an electric blasting apparatus, which consists of a small portable box, from which wires are led to the charges, of which any number from one to 50 may be fired at once by turning a handle the requisite number of times, and pressing a button. Holden and Brooke, Salford, exhibit injectors; T. R. Summerson, Darlington, water gauge fittings; James Ashworth, Stanley Hall, Derby, has a collection of various kinds of safety-lamps, including Mueseler Joassin. Mueseler Arnould Godin, Mueseler standard Belgian with glass bell-mouthing to the chimney. Mueseler, as above fitted, with Ashworth's disc and tubes in place of the horizontal gauze, and also Ashworth's inner and outer shields. Ashworth Woolrych lamp, fitted with Ashworth's reflector and inner and outer shields. Ashworth Arnould Mueseler, fitted with Ashworth's disc and tubes, reflector, and inner and outer shields. Oil vessel with two wicks, for burning petroleum or paraffin. Mueseler chimney, showing mode of attaching Ashworth's disc, tubes, and reflector. Arnould Mueseler chimney, with foregoing fittings. Mueseler chimney, with shield for horizontal gauze. Ashworth inner shield, for any glass lamp, and a drawing showing section of the Ashworth Arnould Mueseler and the Ashworth Woolrych. William Corbet, Edinburgh, has models in tin, iron, and fire-clay. The Hardy Patent Pick Company, Sheffield, have a column decorated with mining tools, and beside it Bainbridge's patent reflecting safety-lamp, which burns with spirit, and is stated to be safe in an explosive current of 41 ft. per second. No department is better represented than that of ropes—steel, wire, copper, and hemp—for winding and haulage purposes, and also for use as lightning conductors. At the stand of T. and W. Smith, Newcastle-on-Tyne, may be seen a ponderous hemp rope, 29 in. in circumference, such as was formerly used for hawsers, and which has now an equivalent in a steel wire rope of 8 or 9 in. The same firm have also a coil of steel rope, 9½ in. in circumference, and with a breaking strain of 200 tons. This description of rope is used for raising sunken vessels by means of pontoons. Similar ropes are exhibited by George Craddock and Co., Wakefield; D. H. and G. Haggle, Sunderland; Dunn, Humble, and Co., Newcastle-on-Tyne; J. Williams and Co., Wishaw; James Brown and Co., Manchester; John Shaw, Sheffield; and Felton and Guilleaume. The stand of R. S. Newall and Co., Gateshead-on-Tyne, has a special attraction to those who take an interest in submarine telegraphy. One case contains sections of the following submarine telegraph cables:—The Dover and Calais, which was the first submarine cable ever laid; the Dover and Ostend; the Great Belt; the Bona; the Russian; the Red Sea and India; the Channel Islands; the first Atlantic; and the Donghadde and Portpatrick. The wire ropes shown were

invented in the year 1840. The invention consists in preventing the wires from being twisted whilst they are being laid round a core, which may be of hemp or other elastic material, and these strands are laid round a core, also of hemp, to form a rope. The wires are thus kept at an equal distance from the centre, and consequently are all equally strained, the greater strength being thus secured. The submarine cable is simply a slight modification of a strand of wire-rope, and was also Mr. Newall's invention. The insulated telegraph wire forms the core of the strand or cable, which varies in weight from about 1 ton per nautical mile to 10 or more tons per nautical mile. The Niagara Suspension Bridge was constructed by this firm, and Cleopatra's Needle was towed from Egypt to England by one of Messrs. Newall's and Co.'s ropes. After having laid the first eight or 10 cables Mr. Newall invented the apparatus for laying them. On the stand are specimens of the cables manufactured for the Niagara and Lambeth Suspension Bridges, and a sample of the rigging of H.M.S. Black Prince. There is also an illustration of the sailing barque William Connell, built in 1851, the first vessel provided with wire rigging. Messrs. Newall show a piece of the rigging of the well-known Vanguard. Nobel's Explosives Company exhibit samples of dynamite, blasting gelatine, also detonators and fuses for exploding them. On the same stand is a block of copper after having been acted on by No. 1 blasting gelatine, the strongest explosive known. A dummy specimen of the latest invention of Mr. Alfred Nobel, called Gelatine-Dynamite, is also shown. John Mills and Sons, Newcastle-on-Tyne, devote a stand to the exhibition of the safety-lamps designed by Mons. J. B. Marsaut, of the Besseges Coal Company. The lamp bottom is almost of the ordinary construction, the glass is carefully ground and tempered, while above it, and within an outer protecting shield, are two gauzes. The air enters through small holes, strikes upon a brass ring, and then passes through the double gauze, thus not only providing against explosion where fire-damp is present, but avoiding the possibility of the light being blown out. The feature of the lamp is, however, the lock, which is the invention of W. J. H. Ryder. The protecting shield is attached to a brass rim, which screws on to the frame of the lamp, to which the oil reservoir is similarly attached. One of the pillars of the frame is moveable, and when the upper part is placed in position the pillar is moved up into a recess in the rim of the shield. The bottom or oil reservoir being screwed on, the pillar is placed in position and locked by a rivet of lead. The rivet is closed by pliers, which at the same time makes a stamped impression on the lead. The pliers, which thus forms a key to the lamp, are retained in the possession of the manager or his representative. Messrs. Douglas Fraser and Sons, Arbroath, exhibit samples of the class of shoes called alpagatas, which are the principal wear of the Spanish and French peasantry and mining population. The shoes consist of a jute or hemp sole, with canvas uppers. James Brown, Glasgow, has a collection of various optical and surveying instruments and chemical apparatus, and Morrison Brothers, a selection of draughtsmen's requisites. The Gartsherrie Fire-clay Company, the Blochairn Sand and Fire-clay Company, John Young, Sons, and Co., Heathfield and Cardowan, the Glenboig Union Fire-clay Company, and James M'Naughton, Son, and Co., Heathery Knowe, all show samples of their manufacture. Love and Stewart, Glasgow, have an attractive arbour constructed of pit props and sleepers. Roberts and M'Gill, Glasgow, show a collection of tools and appliances requisite in mining. Charles Robertson, Edinburgh, has hutch weighing turn tables and machines. Richard Johnstone, Clapham, and Morris, Manchester, exhibit various styles of safety-lamps and lead rivet-making machines. William Struthers, Glasgow, has anti-friction bearings, B. B. Lindsay and Co., and John Allan, Glasgow, samples of steam and hydraulic packings; Paul Brothers, Glasgow, gutta-percha pump buckets, Scemerville and Morrison, Rutherglen, various descriptions of waterproof cloth; Daniel M'Queen, a brass pump bucket for deep pumping, made by Miller and Co., Coatbridge; the Niddrie and Benhar Coal Company, a huge block of Virtuewell coal; Miller and Co., Edinburgh, wheels, pulleys, rollers, and samples of chilled metal for crushing rollers. A considerable amount of space is occupied by the Carron Company, Falkirk, with specimens of limestone, coal, and ironstone, in the raw and calcined state, also pig-iron from the company's fields and works. They also exhibit the old-fashioned carronades—so named because made at Carron—once so much used in warfare; modern cooking-ranges, grills, stoves, &c., while throughout the building they have distributed seats for the use of visitors. The Westburn Coal Company have arranged specimens of their coal, and H. M. Edwards, Wakefield, has a fac-simile of the original Davy lamp, besides specimens of other safety-lamps in use. James Barr, Kilmarnock, shows sawing machines; Robert Wilson and Sons, Bishop Auckland, steel bore rods and patent clip forks; the Automatic Boiler Feeder Company of Scotland, one of their feeders; John Whitelaw, C. and M.E., Edinburgh, specimens of coal, &c., from Serbia; the Acme Steel Foundry Company, Glasgow, various steel wheels; M'Naughton and Sinclair, Glasgow, colliery report and other books; the Fife Coal Company, a section of Leven Cannel coal; Henry Aitken, Falkirk, samples of Boghead coal, and of timber treated by his naphthalene process of preserving. Robert D. Thomson, Motherwell, exhibits a sample of spire coal for gasmaking purposes from Leicester-shire; the Birkenhead Coal Company Foundry, malting and shale coke, the latter used for yachts and stoves; Thomas Thornton, Lesmahagow, blocks of "main" and "wee" Lesmahagow coal; the Dolcett and Llain-Hir Copper and Lead Mines Company, specimens of copper and silver-lead ores from their mines in Cardigan, shire, also native copper from Serbia, and slates from Merioneth-shire; William Craig, Coatbridge, colliery books and forms; John Vivian, C.E., a selection of cores obtained from mineral borings in English and Scotch water and brine wells; John Galloway, Ayr, a core from a mineral bore; and Robert Caldwell, Dublin, railway and tramway trucks. The Pumphreton Oil Company have a case containing samples of shale and its products. James Bonnar and Sons, Dunfermline, exhibit an ambulance stretcher, designed by Dr. Nasmyth, Cowdenheath, which is considered specially suitable for use in case of colliery accidents. Nettlefolds (Limited), Birmingham, have a small wall case of screw goods. Stephen Humble, London, shows his patent detaching hook, blasting plug safety-lamp, sinking link, and draw bars; Robert Hamilton, Edinburgh, mining requisites, A. B. Fleming and Co., Granton, samples of their well-known oils; and Robert Liston and Co., Glasgow, products of the distillation of resin. Colin Dunlop and Co., Hamilton, forward a collection of the pig-iron manufactured by them, together with specimens of minerals raised from their pits. The Nithill and Lesmahagow Coal Company send blocks of the Duke of Hamilton's Main Lesmahagow Cannel coal, and pieces of calcined black band ironstone. Messrs. William Cook and Sons, Glasgow Steel Works, Cranstonhill, Glasgow, have a large stand, and show several novelties, sketches of which will appear in a future number of the *Mining Journal*. The most interesting, perhaps, is the full-size model in operation of a new patent hutch tipping machine, which is destined to come into very general use, as the prevention of the breakage of the coal alone by its use is a matter of the greatest importance. This is not its only feature, however, for in addition there is a great saving effected in the wear and tear of doors, and time and labour in its operation. These patent coal tippers are worth seeing by colliery-owners, and certainly form another of the valuable practical and novel features of the Exhibition. It is a circle plate tipper, with a lid and a tray, which retains the coal until it reaches the screen, when it is emptied without any violent shock to break the coal. Messrs. Cook also show the steel and iron hutches of which they are such large makers—circular saws, hand saws, cross-cut saws for pit use, and various samples of cast steel, showing the different stages of manufacture from the iron to the finished bar. The Compressed Lime Cartridge Company (Limited) of London, whose manufactures we have commended, have a prominent stand which on the opening day attracted considerable attention. In view of the difficulties and dangers attending shot-firing, and the satisfactory results shown by the use of the compressed lime cartridge, it seems probable that this company's system will extend considerably. It was recently awarded a silver medal at the Inventories Exhibition. Messrs. John Bowman and Co., Glasgow have the "Hirnant" drill for tunnel work (Larmuth and

Howarth's patent), the "Hirnant" rock-drill by the same patentees, and Bernay's patent steam-pumps, of which Messrs. T. Larmuth and Co., Salford, are sole makers. Lindsey Burnett and Co., Govan, send boiler-plates and fittings; Dickson and Mann, Armadale, wheels and rollers; Henry Pooley and Son, Glasgow, weighing machines and steel yards; Maurice Gandy, Liverpool, patent belting and fasteners; Dick, Kerr, and Co., Kilmarnock, portable railway and mining wagons; Lancaster and Tonge, Manchester, various descriptions of traps, pistons, and lubricators; John Turnbull, jun., Glasgow, a turbine; Muirhead and Guthrie Smith, Glasgow, samples of lead ore from North Wales; Isaac Hill, Derby, a tub clip and adjustable prop; J. Watt, Torrance and Co., Glasgow, colliery and railway timber; John Bowman and Co., Glasgow, drills and pumps; John Gillott and Son, Barnsley, a coal cutting machine and several useful appliances connected with machinery; Thomas Potter, Glasgow, pumps, traps, and tanks; Dempster, Moore, and Co., Glasgow, blowing and exhausting fans; and Lamberton and Co., Coatbridge, a Celtic horizontal girder and a patent compound balanced engine, also a model of a stone-breaker. The Simplex Electric Light and Plant Company, Manchester, besides setting aside a stand for lamps and fittings, have provided for the illumination of the large hall a dynamo-machine capable of running 200 20-candle power incandescent lamps. Between 140 and 150 incandescent lamps with spiral threads of carbon are suspended from the roof, and with these the hall will be illuminated at night. The lesser hall is illuminated with electric light by Norman and Son, Glasgow, and the exterior by Henry Bennett and Co., Glasgow, who have fitted up four arc lights, each of 3000 candle-power. Adjoining the Simplex Company's stand is that of the Protector Lamp and Lighting Company, with a patent air-gas machine, which makes gas from hydrocarbon oils for illuminating purposes without heat or coal. There are also safety-lamps of different kinds. Thomas McCulloch and Sons, Kilmarnock, provide an engine for driving the three dynamos, and Marshall, Sons and Co., Gainsborough, exhibit several very fine engines. Asham Brothers and Wilson, Sheffield, have several different varieties of pulverisers, the most noticeable being Lucop's patent, a special machine for all minerals, phosphates, cement, &c., which does its work very satisfactorily. Samples of pulverised cement, phosphates, and Fuller's earth are exhibited as soft and fine as wheat flour. This firm obtained the bronze medal for pulverising machinery at the Inventions Exhibition. Loudon Brothers, Glasgow and London, show their horizontal type of centrifugal pumping-engine, and their patent "Dead Blow" hand-power rock-drills. The latter are designed to meet the demand for some ready and convenient mode for drilling blast holes, to supersede the slow and tedious process of hand boring. These machines are self-feeding, and the feed can be readily adjusted to different classes of rocks. The deepest holes can be bored from one fixing. The machines are capable of boring holes, from 1 in. to 4 in. diameter, at any angle and to any required depth. The rate of boring as compared with the ordinary process is described as three or four to one. They are very portable, as two men can move the machine from place to place, and set it in action. B. H. Remmers and Co. show various kinds of pumps. Alexander Turnbull and Co., Glasgow, show patent safety-valves and boiler fittings, which are in use at the Glengarnock Steel Works, on all the boilers at Messrs. Merry and Cuninghame's and at the Tharsis Sulphur and Copper Company's Works. The ordinary safety valve, and many others, when subjected to the maximum steam-generating power of the boiler test, will allow the steam pressure in the boiler to increase above the valve load to a considerable extent, the increase being in very many instances to a dangerous degree, whereas with the Turnbull valve, before the pressure has appreciably increased the valve will have lifted steadily and given a full and free escape for all the steam generated, and will close again practically at the opening pressure, thus performing the functions of a perfect safety valve. John Macdonald, Glasgow, as agent for Whitehead and Pollock, patent double-action piston rings; Gilbert M'Pherson, jun., Stair, specimens of Water of Ayr stone; Russell and Fallerton, Glasgow, samples of wood coated with the Carbolineum Avenarius; Thwaites Bros., Bradford, an air-compressor, blower, and steam-hammer, also a sectional model of Stewart's recently invented "Rapid" cupola for melting iron, and, with water-jacket, for smelting copper, silver, and lead ores; and Gilbert, Bogle, and Co., Glasgow, two varieties of steam-pump. Considerable interest attaches to the Worthington steam-pump (114, Queen Victoria-street, E.C.), several of which were recently purchased by the British Government for the water supply between Suakim and Berber. The engine, which is shown for the first time in Great Britain, is an American invention, and is used in connection with the pipe lines in the United States for pumping petroleum. Two pumps act side by side, producing a continuous flow. At the east end of the hall there is a group of drawings of more than ordinary interest. They are by Mr. R. T. Moore, C.E., Glasgow, and Mr. J. M. Ronaldson, Assistant Inspector of Mines. Mr. Moore displays a finely-executed map of the Scotch coal measures, drawn out in 1854 by his father, Mr. Ralph Moore, Her Majesty's Inspector of Mines, and supplies section of same, with diagrams showing the production of iron from 1760 to 1884, the output of coal in Scotland and the prices and miners' wages from 1849 to 1884. Mr. Ronaldson contributes sections of strata of a famous Durham "slip," a plan showing the method of working by the longwall system, cross-section of road and of working face in longwall workings, plan showing stoops being taken out in a seam worked by the stoop-and-room system, sketch of colliers at work, and sketch of miners of a bygone age descending the shaft.

At the west end of the hall, J. Copeland and Co. exhibit photographs showing various kinds of engines and other plant in use for mining, pumping, and refining of paraffin, also sugar refining. In the lesser hall, James Clark, Cumnock, exhibits a model of a coupled horizontal winding-engine; Landale, Frew, and Lendale, mining engineers, Glasgow, vases made from coal and shale; R. Armstrong, Dalkeith, a model of railway rail fastenings; John M. Ronaldson, Pollokshields, models of different modes of opening up seams of coal; and the Bent Colliery Company, a model of the endless rope haulage system in use at their colliery at Hamilton. The North of England Institute of Mining and Mechanical Engineers, Newcastle-on-Tyne, forward a case containing specimens of safety-lamps, past and present. William Kirkwood, Penicuik, exhibits a model showing a system of working a single road incline; M'Lean, Dalzell, and Co., Lesmahagow, articles made of coralline limestone; R. E. Ormsby, Newcastle-on-Tyne, a model of a coal and stone detacher; John Smith, Bloxwich, a model of a travelling screen for sizing coal, used in Staffordshire; William Carter, jun., Glasgow, his patent apparatus for coupling and uncoupling railway wagons; John Sansom an appliance for communicating with the driver and guard on a railway. F. J. Rowan, C.E., Glasgow, shows a model of Wilson's patent gas producer for making gas from ordinary dross for firing purposes. The dross is fed in at the top by means of a hopper, and air is forced into the producer by means of steam jets. Peter M'Beth, Falkirk, shows self-acting safety gates for midshaft workings; and William Carey, Bo'ness, a model of an arrangement by which a pair of horizontal coupled direct-acting winding-engines can work with both ropes over the drum, and in the same pit. P. Walker, Airdrie, sends ornaments made of gas coal from the Airdrie Musselband seam and Robert Dunlop, chemist, Stanrigg Oilworks, Airdrie, an interesting collection of fossils, illustrative of the flora and fauna of the carboniferous system, chiefly from the Lanarkshire coal basin. From Gartsherrie Science School, Coatbridge, are two incline dogs and haulage clips, and from John Watson, Slamannan, a model of safety-gates. Henry Simon, Manchester, is the exhibitor of a coke oven. A furnace having been lighted beneath the oven, the coal is fed in from the top, after which the oven is closed. The gas which is generated passes through a process which enables the tar, ammonia, and ammoniacal liquor to be recovered. Thereafter the remaining gas is led round the exterior of the oven, to which it supplies the requisite heat. The Bent Colliery Company forward various drawings of apparatus used by them, and the Mining Institute and T. Lindsay Galloway submit geological maps. Landale, Frew, and Lendale, M.E., Glasgow, and John Morison, Dalkeith, send sections, the former of the Scotch coal fields, and the latter of a cross-cut mine driven in the lower carboniferous formation at Newbattle Collieries,

at a depth of 150 fms. James Rigg, London, exhibits a drawing of his coal-tipping machines and screens; John McCulloch, Airdrie, plans of by-product coke ovens, gas producers, and oil retorts; Robert Andrew, Dunfermline, a plan of a screen for picking and clearing coals, and of a set of folding shafts for shafts. Norman M. Henderson, of the Broxburn Oilworks, exhibits drawings of his patent improvements in the manufacture and refining of mineral oils. Thomas T. Rankin, Gartsherrie Science School, Coatbridge, sends various sketches interesting to miners. Henry Aitken, Falkirk, exhibits a plan of his improved method of condensing gas, also of improvements in making coke, and taking off oil, tar, or ammonia. The North Staffordshire Institute of Mining and Mechanical Engineers forward a plan of the coal field in that district, and another plan illustrative of the working of the seams. Gilbert M'Pherson, Ayr, is the exhibitor of a plan for a proposed sectional working for localising explosions and securing thorough ventilation in fiery mines. In the gallery adjoining the lesser hall are exhibited Cornish clocks used in pumps at Cadzow Colliery, showing the leather mountings as taken out a few weeks ago after from 9½ to 11 years' work. John Smith, Bloxwich, sends samples of tools from Staffordshire. The Legbrannoch District Collieries Company, Holytown, exhibit the Harrison mining machine and the Haswell mechanical coal-getter. Reid, Parker, and Co., Glasgow, have specimens of non-conducting coverings and cements. The Eglington Chemical Company exhibit silica bricks, also Neizerling's patent safety-lamp for use in fiery mines. All air passing into or from this lamp has to pass through an incombustible filter which retains dust and sparks. John H. Peck and Co., Wigan, show one of their patent ambulances.

We have endeavoured to give a slight sketch of what is to be seen at this Exhibition, and it is only necessary to add that those interested will be amply repaid by a personal visit. The number and interest of novelties is remarkable in proportion to the extent of the Exhibition. It is proposed to close the Exhibition on the 24th instant.

A DELUGE OF COPPER

(From the Times.)

Copper at 43½ 10s. per ton is a paradox which the oldest member of the trade is puzzled to explain. It is one of the "frightful examples" of depression, and as such will, no doubt, come very prominently under the notice of Lord Idlesleigh's Commission. Over-production, which is now the *dele noir* of all our staple industries, has been especially hard on copper. In the past five or six years there has been a general outbreak of new supplies in all parts of the world, notably in the Far West, where Arizona and Montana threaten to eclipse the fabulous copper mines of Lake Superior. The copper industry of America, though yet in its infancy, is one of the most gigantic developments now claiming the attention of the political economist and the man of business. Its significance is great both for the regions in which it is carried on, and for the general commerce of the world. It raised Michigan from a half-populated lumber field into a prosperous and wealthy state. It has given to Arizona the progress of half a century condensed into a few years. It is now breaking for Montana her bonds of ice, and bringing her rapidly to the front as a mineral producer. It is rapidly overtaking gold and silver as a source of national wealth for the Americans. Even at prices so low that they have no parallel in history, its annual product is valued at more than one-half that of the gold, and more than one-third that of the silver raised in the States. In dividends earned and paid it takes the lead of both. Up to the end of 1884 the total amount paid in dividends by American gold mining companies was about \$16,750,000, silver mining companies fully \$14,000,000, and by silver and lead mining companies over \$14,500,000. The aggregate of the copper mining dividends to the same date exceeded \$34,500,000. Though they have now dropped to about \$2,000,000 per annum we cannot close our eyes to the vast possibility they contain of future expansion. Copper, in short, is one of the great coming questions of American industry, and through it of international trade.

Twenty years ago America revolutionised the wheat market of the world. Ten years ago her silver mines began to demonetise silver, and the farthest-seeing prophet confesses himself puzzled to anticipate where the process may end. Now the Americans are about to force on the Old World a life and death struggle with regard to copper. While this competition was still in its infancy the copper market had begun to feel the pressure of over-production. Cornwall had been swamped by Australia, Australia, in its turn, had been overpowered by Chili. Next came the gigantic mines of the Spanish Peninsula, threatening to throw "Chili" into the shade. During the early part of that struggle America was one of the main supports of the market, consuming considerably more than she produced. With the development of her Lake Superior mines, however, she swung round from the position of a leading consumer to that of a first-class producer. When on the back of that she brought into the field her new copper mines in Montana and Arizona all pre-existing calculations were utterly upset. The copper market had to find a new level in accordance with the vast supplies which were being rushed into it both from the Old World and from the New. Ages now seem to separate it from the time when 140l. per ton was a not uncommon quotation for sheet copper, and 120l. was considered a fair working average. Ten or a dozen years later, when Wallaroo dropped into the "nineties," there was serious alarm among mining shareholders in Australia. Yet a little later, when the market found itself under the control of Chili bars at 70l. per ton, times were considered very bad indeed. It is difficult to realise that only three years ago such a price was being dolefully grumbled at as ruinously low. During the past summer smelters have more than once been glad to get in the neighbourhood of 43½ per ton. Whether or not copper touched bottom then would be as hazardous to affirm as when miners were declaring that it did not pay to produce at double the price.

In the course of half a generation the copper market has collapsed as absolutely and completely as silver did, and by precisely the same process. In that short period the marketable supply has increased more rapidly than in the whole previous history of copper mining. The copper production of the world, which is estimated to-day at from 200,000 to 220,000 tons per annum, was so recently as 1880 calculated at 120,000 tons per annum; in 1870 it was little more than 80,000 tons; and in 1850 it was between 40,000 and 50,000 tons. This enormous increase of supply has come mainly from new sources which were quite unknown and unsuspected a generation ago. They have sprung into operation one after another like thrilling situations in a melodrama, and each has been a greater puzzle than its predecessor. The sweet simplicity of copper broking as it was carried on a few years ago has been transformed into a bewildering maze of brands and grades and geographical distinctions. Swansea could then have counted on the fingers of one hand the various localities from which it drew its raw material. Now there are more than 20 separate and distinct copper-producing countries, most of which exercise more or less influence over the European market. From Algiers on the Mediterranean to Chili and Peru on the Pacific Ocean, from Norway to the Antipodes, and from Canada to Japan, there has been an epidemic of copper mines. Some countries, it is true, cut a very small figure in the list, but they can all flatter themselves on having great possibilities. There is a delightful uncertainty attending every one of them, and where we have only a few hundred tons this year, we may next year find thousands. The detailed estimate of H. R. Merton and Co., of London, shows that there are at least a dozen countries which produce more than 1000 tons of copper per annum. At the head of the list stands the United States, with an aggregate for 1884 of 63,950 tons. It has more than doubled its production in three years, and in five years has very nearly trebled it, its aggregate in 1879 having been only 23,350 tons. For the second place Spain and Chili run each other very hard. Last year the total yield of the Spanish mines was close on 41,000 tons, while Chili produced a few hundred tons over the 41,000. It is very probable that the current year will reverse their relative positions, as the Chili production has for some time been virtually stationary, while that of the Peninsula continues to make rapid progress. Two years ago it was only about 36,000 tons, and not till 1879 did it pass 30,000 tons.

A few years ago Australia ranked among the leading sources of supply, but her position is now being challenged by some keen competitors. Since 1880 Germany has got ahead of her, but the contest between them is still close. Last year the yield of the German mines was estimated at 14,780 tons, against 13,300 tons for the whole output of Australia. No other secondary supply approaches these large totals, but there are several ranging from 4000 to 6000 tons per annum. Japan is credited with 6000 tons—a very significant fact in view of her proximity to India, which has hitherto been one of our best copper markets. Copper mining is probably no infant industry among the Japanese, but it seems to have of late received a special stimulus. Till about four years ago its annual production was estimated at 1900 tons; consequently, in the interval it must have been more than trebled. At the same rate of growth Japan should soon be able to meet all the requirements, not merely of India, but of the Far East. The Cape of Good Hope shows a very steady production of about 5000 tons per annum, raised chiefly, if not wholly, by one company. The wide distribution of copper is strikingly illustrated by the circumstance of its being worked in nearly all the principal European States. The German and Spanish mines have been already referred to. Those of Russia, though less known, have some statistical importance, as their yield is believed to have increased to the substantial amount of 4000 tons per annum. The mines of Norway and Sweden make up between them nearly 3400 tons a year. Those of Portugal yield nearly 3000 tons, and last year they had the distinction of beating Cornwall, the annual output of which is becoming small by degrees and beautifully less. In 1881 it reached very nearly 4000 tons, but in 1883 it shrank to about 3000, and last year it is supposed to have been not more than 2500 tons. Italy is only a third-rate producer, and does not seem to be advancing, its aggregate having declined from 1600 tons in 1883 to 1325 tons last year. Australia and Hungary are both very nominal producers, their aggregate falling short of 1000 tons per annum. These third and fourth rate sources of supply on the Continent have very little influence on the copper market, the whole product being, as a rule, retained for home consumption. Germany, too, is for the most part a self-consumer. Of European mines the Spanish and Portuguese alone directly affect the international market, with which we are now dealing.

When we turn to South America a new vista of yet untested and ungauged possibilities opens out before us. The presumption is that the southern half of the Continent will prove to be as rich in minerals as the northern half is already known to be. As regards Mexico, that is no matter of hypothesis—though, strangely enough, very little copper has as yet been found among the subterranean wealth of the Incas. Her production appears not to have reached 500 tons in any recent year, and last year, so far as can be ascertained, it fell short of 300 tons. But some of her smaller neighbours are beginning to show cupriferous developments of high promise. Venezuela is making herself very widely, if not favourably, known in Europe through her gold mines, and she possesses at least one copper mine of first-class importance—the New Quebrada. It contributed last year to the copper supply of the world no less than 4600 tons, very nearly half the production of the Tharsis mines in the same period. Bolivia is also to be reckoned among copper producers, though during the past two years low prices have obliged it to contract its operations severely. From a yield of nearly 3300 in 1882 it dropped last year to less than one-half.

In any attempt to forecast the future of the copper market, one of the first circumstances to attract attention is the geographical distribution of the commodity. That has undergone a marked change in the past few years, and it may draw after it a corresponding change in the distributing centres. At present London and Swansea are beyond dispute the copper markets of the world. Last year more than half of the total amount raised was handled in these markets. They draw the raw material in various forms from Spain, from Australia, from Chili, and latterly even from Arizona and Montana. But when this course of trade was established Swansea was the most accessible centre for all the leading copper mines. That is no longer true of a considerable portion of them. It is not correct, for instance, of the United States mines, nor of those in Central America. It remains true of Chili and Peru only because the Americans have not yet entered seriously into competition with iron the Pacific Coast. They are now feeling their way from San Francisco, but for a year or two longer they will have an uphill fight until the Isthmus of Panama is cut for them. Then they will have both coasts of South America at their feet, and Swansea will have to contest with Baltimore every ton of copper exported from Chili or Peru. The Americans will see their opportunity of, so to speak, "capturing" the greater part of the production of their own continent. They will apply a Monroe doctrine of a most practical kind to copper. If by so doing they get into their hands a large share of the total production of the world, they will certainly be able to compete with us for the control of the market; it may be even to take it from us. This is so important a consideration as regards our commercial future that it deserves further looking into.

It is evident that the centre of trade which can attract the largest share of the annual out-turn of a given commodity must in the end become its controlling market. In virtue of that law London and Swansea now control the copper trade of the world, for, as has been said, they have the handling of more than one-half of the total production. Last year the imports into this country, chiefly to these two ports, were equal to 113,000 tons of fine copper. This added to the Cornish production of (say) 2500 tons, makes 115,500 tons distributed through the British market. Taking the aggregate production of the world at 210,000 tons, it would be about 55 per cent. If, however, the whole of the American production had been retained at home, it would have amounted to more than 112,000 tons, of which nearly 64,000 would have belonged to the United States, and the remainder to South America. Young as its copper industry is, America has thus already within its grasp a good half of the world's output. It has, moreover, the chances of the future largely on its side. New copper fields may, of course, be discovered in Europe or in Asia, or in Africa; but, failing them, the growth of production in the old world must be relatively slow. In America there is a certainty that enormous deposits of copper are yet untouched, and that the fields already open are capable of indefinite development. Taking a very moderate estimate of the probabilities of the case, the time may not be far distant when the copper production of the American continent will greatly exceed that of the rest of the world. If this anticipation be realised, and it seems comparatively near, the centre of gravity of the copper markets will be transferred across the Atlantic. Placed under American control it will have American methods of business applied to it, which in some material respects are very different from our own methods. To mention only one instance. There is a powerful institution in the States bearing the concise but rather mysterious name of "a pool." It has by degrees insinuated itself into nearly every leading department of American industry and commerce. Railway pools, coal pools, iron pools, and mining pools are familiar phrases in everyday life of the States. Even copper pools are not altogether a novelty. More than one attempt has been made to acclimatise them on the shore of Lake Superior; and there is, in fact, a very peculiar pool now in the throes of a disturbed existence. Two years ago the Lake Superior companies had to take seriously in hand the problem of over-production. In 1882 there had been raised in the United States 88,000,000 lbs. of fine copper, while the home consumption was only 77,000,000 lbs., and the export less than 5,000,000 lbs., leaving 6,000,000 lbs. surplus in the year. In 1883 the total production was 113,000,000 lbs., and the home consumption only 80,000,000 lbs. The copper companies were threatened with a surplus on the year of over 30,000,000 lbs., and a special outlet had to be sought for it abroad. They entered into contracts in Europe, particularly in France, for very heavy sales at lower rates than they were obtaining in their own market. Last year their output increased by another 25,000,000 lbs., raising the total to nearly 140,000,000 lbs. Meanwhile the home consumption declined by 10,000,000 lbs.—that is, to 70,000,000 lbs. Including the surplus stocks of preceding years there was now between 80,000,000 lbs. and 90,000,000 lbs. to dispose of abroad. The special contracts placed in France and elsewhere were enlarged to suit the

requirements of the case, without much regard to price. Towards the close of the year forward sales were being made as low as 11 cents and 10½ cents per pound. By this means the American companies relieved the dangerous glut that was overwhelming them to the extent of nearly 80,000,000 lbs., but they did so at the expense of the European market, and with the result of utterly demoralising it.

The above operations were distinctively American. They were planned on American lines, and carried out with American energy. The Lake Superior companies, numbering about a score, formed a pool, under the direction of the famous Calumet and Hecla, on the principle of each putting in a certain ratio of its production. The sale of the pool copper was left absolutely to the Calumet and Hecla, which seems to have entered into some most peculiar contracts. In which it sold several thousand tons to a speculative group in France on a sliding scale price of 4½ per ton over the average of Chili bars at the month of delivery. Chili bars are well known to be a decidedly speculative article. It is not difficult to put the price of them either up or down as bold operators may find it convenient. The French speculators who had bought this Lake Superior copper were obviously under a strong temptation to depress the standard by which it was to be paid for. It had very probably been part of their original scheme to knock down Chili bars and take a two-handed profit—one out of Chili, in buying it back at a lower level, and the other out of Lake Superior, in settling with the pool at an artificially reduced price. In March, when Chili bars touched 43½ per ton, the equivalent payable to the Lake Superior pool was a shade under 40 c. per pound. Some of the minor companies began to kick when they saw how the European market was being cleverly worked against them. At last the Quincy people took the bull by the horns, and refused any longer to furnish their portion of the copper for the French contracts. The Calumet and Hecla appealed to the Courts to enforce the terms of the pool, but failed on the ground of pools being contrary to the public interest. Thereupon the Quincy and several, if not all, of the other companies left the Calumet and Hecla to carry its French contracts on its own shoulders. It is understood to have carried them out, and it is even said to have entered into new forward sales of a similar kind. While it was shipping its surplus copper to France at 10 c. per pound its competitors were finding a ready sale for their copper in the States at from 11 to 11½ c. per pound.

Presumably the Lake Superior companies will be more careful in their future dealings with French speculators, but pools of one kind or another are sure to be heard of again among them. They may, indeed, be attempted on a considerably larger scale should the increase of American production force the American companies into some such measure of self-protection. Restricted production has become a recognised principle of all the great industries whose markets are liable to periodical gluts. We have it practised openly in Cleveland and indirectly in Lancashire. In the United States it is a custom reduced almost to a science. When the American copper market reaches the point of a hopeless glut, to which it is rapidly progressing, systematic restriction will be applied to it, either in the form of pooling or something else. Copper offers exceptional facilities for such tactics. The bulk of it is raised by large producers, who, both on Lake Superior, on Montana, and in Arizona, are comparatively few in number. A moderate-sized room in New York would hold representatives of all the copper mines in the States which have any influence to speak of on the market. In the Lake Superior group there are only 10 which have an output of more than 1,000,000 lbs. per annum. Montana and Arizona may have half-a-dozen each of corresponding rank. But if double that number of men had to be admitted it would still be a manageable pool. Whatever is practicable in pooling the Americans may be counted on to do sooner or later, and in this case sooner rather than later. If the centre of gravity of the copper market should, as we have conjectured, swing round to the other side of the Atlantic, a result which can be safely predicted is that it will soon become a severely manipulated market. A pool to include all the leading producers of both the old world and the new is by no means a Utopian dream. It is a practicable scheme, which a dozen resolute men could carry out without much difficulty if they were to set their minds on it. Investors in copper shares may find some comfort in that reflection when day after day they read of Chili bars being flat at 43½ 10s. per ton. A small degree of the financial strategy which distinguishes the Americans could put them up to a very different figure. Perhaps before the current year closes we may hear combinations on the other side directed toward a forced revival of copper.

SIR,—We have perused with interest the ably written letter on the copper trade which appeared in the *Times* of yesterday.

Permit us, however, to observe that the heading given by your correspondent hardly seems applicable, the term "deluge" implying that the quantity recently brought to the European markets was far in excess of requirements. Such a view is not borne out by statistics, the supplies received by England and France between the 1st of January, 1881, and the 1st of August instant being, in round numbers, 547,000 tons, with an apparent consumption during the said period of 551,000 tons, which excess of consumption is confirmed by a reduction of the quantity of metal in public warehouses of 407 tons.

We may here mention that the visible supply, which includes what is known to be chartered and afloat from Australia and Chili, has fallen from 60,208 tons to 53,645 tons, the value of Chili bars dropping from 62½ to 43½ 10s. per ton, but touching (December-January, 1881-2) during the interim 71½ 5s., with a then visible supply of about 60,000 tons. The average values for that description of copper 1881 to 1884, both inclusive, were 62½ 10s., 66½ 15s., 63½ 5s., 54½ 7s. 6d. respectively, and to-day's price is 42½ 15s. cash. X. Y. and Z. London, August 27.

SIR,—I have read with pleasure your very interesting article on the "Deluge of Copper." Cheap copper would be a blessing to the world at large were it not for the selfishness and greed of the classes engaged in its manufacture and sale. Copper goods and utensils, which enter so largely in the needs of daily domestic life, are as expensive now as they were years ago, when the raw material was three times as costly. For instance, we have to pay for a copper kettle nearly, if not quite, as much as we did 30 years ago. Walk into a shop, ask the price of a copper kettle, and on objecting to it as much too high, the salesman will kindly favour you with the information that "copper is a very expensive material." When if you remark that its present cost is less than half what it used to be, you will be told—"Oh, but the wages of the workmen have been more than doubled the last few years," a statement hard to swallow in the face of the great depression in trade. If manufacturers and sellers of copper articles would only be moderate in their demands and be satisfied with a fair profit the sale of all copper goods would make an enormous stride. I have a large household, and were prices reasonable, I would at once triple the copper utensils we have such as water-cans, coal-scoops, kettles, *batterie de cuisine*, &c. Copper enters largely into the composition of brass, and yet, though tin is also much cheaper than it used to be, the same high prices rule with respect to brass articles as they do to copper. Most household articles are much cheaper now than heretofore, save those made of copper and brass. With reasonable prices an enormous consumption of both would take place, and tradesmen would quickly find out that many nimble sixpences would greatly outvie in profit the very slow half-crown.

The directors of the Staveley Coal and Iron Company (Limited) in their 22nd annual report state that the net profit for the year ending June 30 last is 34,077½. The dividend for the year on the A and C shares (60½ paid) is 2½ 10s. per share, and that on the B and D shares is 8s. 4d., the balance to the credit of revenue remaining at 24,201½. The directors state that the iron trade shows no signs of improvement, and the low prices that now prevail have previously been unknown in the history of the trade in the locality.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. ARBOTH, of Tokenhouse-yard, are given in tabular form in the Stock and Share List page of the Journal.

WESTPHALIAN v. ENGLISH COAL.

The German railway authorities have declared themselves willing to allow specially reduced rates for the transport of Rhenish-Westphalian coal to Italy, and there is said to be a prospect of an arrangement which will enable Westphalian to compete with English coal in the Italian markets, in spite of the reduced rates for English coal introduced on the Italian lines since July 1. The lowest price at which the Alta Italia railway authorities have been able to contract for Cardiff coal delivered in Genoa this year, according to an Italian authority, has been 23½ f., and this rate was quite exceptional, 25 f. (or, say, 20s.) having been paid for the bulk of the supplies. The managers of the Alta Italia railways are prepared to make extensive experiments with Ruhr coal, and were the railway tariffs slightly reduced it is believed that such coal could be delivered at least over a certain part of Upper Italy as cheaply, or more cheaply, than the English article. It is admitted that English coal, to which Italian consumers have become accustomed, cannot be rapidly driven from the Italian markets; but the imports of Westphalian coal, which amounted to only 10,600 tons in 1883, rose last year to 22,000 tons, and are this year expected to exceed 40,000 tons, even with the existing railway rates. Could the Ruhr coal be delivered as far as Milan at 2½ f. per ton less cost for carriage than at present, as there is said to be good reason to hope may be the case, the imports would, it is argued, increase fivefold within a year and tenfold within two years.

J. A. JONES,

MINING ENGINEER,

GIJON (ASTURIAS), SPAIN.

Mines inspected and reported on. Assays and valuations effected. Has on hand offers of Mines of Copper, Calamine, Blende, Phosphate of Lime, Tin, Lead, Iron, Manganese, and Manganiferous Iron Ores.

H. R. LEWIS AND CO.,

MINING OFFICES,

BARTHOLOMEW HOUSE, BARTHOLOMEW LANE, LONDON, E.C.;

AND

157, ST. VINCENT STREET, GLASGOW.

Supply accurate and reliable information on all Mines, Home and Foreign. Execute orders and advise the Purchase or Sale of Mining Securities. Undertake the Management of Mines or Mining Companies. INVESTORS WILL AVOID LOSS BY CONSULTING US BEFORE BUYING OR SELLING MINING SECURITIES. ESTABLISHED 1871.

JAMESON and WOODS,

CONSULTING CIVIL AND MINING ENGINEERS AND METALLURGISTS. Particular attention devoted to Mines and Smelting Works in Europe. A speciality made of Eastern Europe.

Mines and Works inspected upon and valued on moderate terms. Plant and Machinery estimated for and erected upon tenders. Independent Mining Reports made upon properties in any part of the world, and general advice and counsel given on request. Address—

27, KING STREET, CHEAPSIDE, LONDON, E.C.

Registered Telegraphic and Cable Address: KOVITCH, London.

ALFRED H. KNIGHT, F.C.S.,

ANALYTICAL CHEMIST AND ASSAYER,

18, CHAPEL STREET, LIVERPOOL.

FEES MODERATE. LIST SENT ON APPLICATION.

JOHN REID,

CERTIFICATED MINE MANAGER, MINING ENGINEER, AND SURVEYOR,

INSPECTS, REPORTS ON, AND VALUES COLLIERIES, MINES, AND MINERAL PROPERTIES.

Plans and Sections prepared, and general advice given on Mining matters.

LONGTON, STAFFORDSHIRE.

W. T. RICKARD, F.C.S., M.E. and Metallurgist (formerly MITCHELL and RICKARD, Dunning's-alley, Bishopsgate-street), EXAMINES and REPORTS ON MINING PROPERTIES in Montana, California, Arizona, Mexico, Peru, Venezuela, U.S. Colombia, and other parts of North and South America. Cable Address: RICKARD, Anaconda, Montana, U.S. London Agent: W. B. COBB, 29, Bishopsgate-street, E.C.

ALEXANDER SMITH, M.Inst.C.E., CONSULTING ENGINEER AND VALUER OF IRONWORKS, MINING, RAILWAY, ENGINEERING, AND OTHER PROPERTY, PLANT, and MACHINERY, PRIORY STREET, DUDLEY.

4, BURLINGTON CHAMBERS, NEW STREET, BIRMINGHAM. Mr. SMITH has been retained for nearly 20 years by some of the most prominent firms, and has conducted many of the largest valuations that have taken place in the kingdom.

Valuations for Stock Taking or any other purpose upon very reasonable terms.

STENCIL PLATES.

TO ENGINEERS, AND ALL WHO DRAW PLANS.

TO BE SOLD, A MAGNIFICENTLY EXECUTED SET FOR LETTERING PLANS, &c. The SET consists of TEN COMPLETE SETS of ALPHABETS, plain, shaded, and ornamental; FIVE SETS of FIGURES in various styles; and FIFTY PLATES of all the principal words used upon Engineering Drawings, including Scales, Points, Corners, &c., in a mahogany case with brushes. Price for the whole, 30s. Apply to Mr. G. BAKER, 22, Orpington-road, Hornsey-road, London, N.

GOLD MINING.

ADVERTISER, owning some valuable Auriferous Quartz veins easily worked and accessible for inspection, DESIRES CO-OPERATION either with a view to private working or further development previous to forming a public company. Address, "Gold," Post Office, Reforme, Portland, Dorset.

WANTED, A SITUATION, at home or abroad, as FOREMAN in a Copper Extracting Works. Has had large experience in the erecting of furnaces, the extracting, smelting, and refining of copper. Highest references. Apply, "G. A.," Post Office, Howdon-on-Tyne.

AGENTS WANTED TO PUSH FIRST-CLASS MACHINERY OILS commanding a large and successful sale. Liberal commission. Address, "Box 22," Post Office, Liverpool.

VALUABLE SLATE and SLAB QUARRY in North Wales for IMMEDIATE DISPOSAL on unusually favourable terms. Roofing slates equal to the best Festiniog. Apply to "W. S. M.," Charles Bowles, Stationer, Mark-lane, London, E.C.

MINING.—A SCOTCHMAN WISHES EMPLOYMENT in the East. Can speak Dutch and Malay, has had experience in tin mining in the Malay Peninsula, and other mining in Africa. Is an engineer and understands planting in various forms. Highest references. Address "Delta," Abel Lloyd and Co., 3, Register-street, Edinburgh.

MR. P. S. HAMILTON (late Chief Commissioner of Mines for the Province of Nova Scotia), PRACTICAL GEOLOGIST, MINING AGENT, and MINING ENGINEER, HALIFAX, NOVA SCOTIA. PURCHASES and SALES of MINING PROPERTY effected, with careful regard to the interests of clients.

SALE OF SOUTH CARADON MINE (LIMITED), LISKEARD, CORNWALL.

MR. MAY is instructed by the Directors of the South Caradon Mine (Limited) to OFFER FOR SALE BY AUCTION in One Lot, at the Auction Mart, Tokenhouse Yard, in the City of London, on WEDNESDAY, 9th September, 1885, at Two in the afternoon precisely, the whole of the valuable

MINING PLANT, MACHINERY, AND STORES

of the South Caradon Mine (Limited), all in good working order and condition, including:—7½ inch cylinder pumping engine, 3 boilers and fittings; 60 inch ditto, 3 boilers and fittings, and brass lined air pump; 2 50 inch ditto, 3 boilers and fittings; 40 inch ditto, 2 ditto; 35 inch ditto, 1 ditto; 24 inch ditto winding engine, 1 boiler and fittings, with steam capstan and capstan chain; 2 22 inch ditto, 2 boilers and fittings, and 1 steam capstan; 30 inch ditto engine, 1 boiler and fittings, with 24 heads of stamps and large crusher connected; 23 inch man engine, 1 boiler, &c.; 14 inch ditto horizontal ditto with 12 inch air compressor, and large boiler as air receiver; 12 inch ditto with 8 inch air compressor, and large boiler as receiver; 12 inch ditto with saw bench, &c., connected; 7 inch ditto 3 cwt. steam hammer with boiler and fittings.

Powerful stone breaker, with 30 feet water wheel and 3½ inch shafting, Barrow rock drills, water wheel and jiggling machines, 10 ton weigh bridge, about 1000 fathoms pumps, 6 to 14 inches, 600 fathoms main rods, 6 to 13 inches square, with strapping plates, &c., shaft balance and angle bobs, 500 fathoms air tubes, 800 fathoms wire rope, over 3500 fathoms tram rails, underground and at surface, 500 fathoms ladders, skip roads and skips, fitting shop, turning lathes, smiths' tools, dressing machinery, with every requisite for carrying on this large and extensive mine, all in full working order.

For further particulars and conditions of sale apply to the Secretary, Mr. W. J. LAYINGTON, 95, Dashwood House, New Broad-street, E.C.; to Capt. GEORGE on the Mine; to the Auctioneer, Liskeard, Cornwall; or to G. J. BATES, Esq., Solicitor, Crown Court-buildings, Old Broad-street, London.

TUESDAY, SEPTEMBER 15TH, 1885.

VERY VALUABLE MINE MACHINERY, PLANT, AND MATERIALS

FOR SALE,

At Cathedral Consols Mine, near Redruth, Cornwall.

MR. JOHN THOMAS has been favoured with instructions TO SELL, BY PUBLIC AUCTION, at the above Mine, on TUESDAY, September 15th, 1885, at Twelve o'clock precisely, the WHOLE of the very VALUABLE

MACHINERY, PLANT, AND MATERIALS,

COMPRISING—

ONE 60 inch cylinder PUMPING ENGINE, 9 feet stroke, equal beam, with 11 ton boiler, shears, balance bob, shaft tackle, capstan, &c. ONE double cylinder 8 inch Robey's PORTABLE ENGINE, 12 inch stroke, with cranks, winding gear, &c. (The machinery is very good.) 3 and 3½ inch steel wire ropes, in good condition; about 160 fathoms of pit-work, 12 inch, 9 inch, 8 inch, and 4 inch, with plunger bottoms and drawing buckets, &c., to match; pitch pine rods, 12 inch to 10 inch; dry tube heated with hot water; large quantity of chain; iron bucket rods, staples, and glands; pins and bolts; strapping plates; smiths' bellows, anvils, tools, &c.; quantity of new and old iron; iron stave ladders; one horse winch; wood houses; carpenter's bench; new and second hand timber; blocks; iron crab winch; drop screw; balance, L, and travelling bobs; very good and efficient patent fan air machine; iron wagons, kibbles, &c.; and a large quantity of articles in use on well appointed mines; also the account house furniture.

Catalogues, with full particulars, weights, and measurements, may be obtained ten days before the sale on application to Captain STEPHEN DAVEY, the Agent on the Mine; Mr. RICHARD RENDLE, at South Penrithal Mine; Mr. EDWARD ASHMEAD, the Secretary, 2, Drapers' Gardens, London, E.C.; or to the Auctioneer, Mr. JOHN THOMAS, Mount Pleasant House, Southgate, Redruth, Cornwall.

FOR SALE, A VALUABLE MINING CONCERN, containing Antimony Ore, Gold and Silver Arsenical Pyrites, considerable quantities of superior Calamine. Also COBALT and SILVER PITS. Situate in South Germany. Terms moderate. Address, in first instance, "G. 5955," care of Rudolf Mosse, Frankfurt-on-Maine.

A GLAMORGANSHIRE COLLIERY FOR SALE.

TO BE SOLD, BY PRIVATE CONTRACT, as a going concern, A COLLIERY in Glamorganshire, situated about midway between the shipping ports of Cardiff and Swansea, adjoining to and having commodious sidings in connection with the Great Western Railway system.

The mineral area is upwards of 500 acres, and is held from two landlords upon very favourable conditions, the Royalties being exceptionally low. The unexpired term of the leases is about 40 years.

There are two pits sunk on the property, both of which are fitted up with winding machinery, but only one is used at present for raising coal. The colliery is ventilated by a Wadell fan. On the surface is erected an excellent pair of horizontal air compressing engines, by John Fowler and Co., of Leeds, for driving the hauling engines underground.

There is also a large number of coke ovens, coal washing apparatus, &c., in connection with the colliery.

The quantity of coal now worked is about 1300 tons per week, but this could easily be considerably increased.

The plant is of modern description, and capable of dealing with a much larger output.

For further particulars apply to Messrs. BASSETT, BASSETT, and LEE, Civil and Mining Engineers, Church-street, Cardiff.

THE BORROWDALE PLUMBAGO MINES,

CUMBERLAND.

TO BE SOLD, BY PRIVATE TREATY, the unexpired term of 35 years in the above old and celebrated Mine.

For further particulars, apply to WM. HOPES HEELIS, Solicitor, Hawkshead, Ambleside; or to E. T. HARGRAVES, Esq., 18, Southwark-street, London Bridge, London, S.E.

DURHAM COLLEGE OF SCIENCE,

NEWCASTLE-UPON-TYNE.

SESSION 1885-6.

A PRESIDENT: THE WARDEN OF THE UNIVERSITY OF DURHAM.

A SPECIAL COURSE OF STUDY FOR MINING ENGINEERS.

This College represents the faculties of Science and Engineering in the University of Durham, and the degrees and titles of the University are open to its Students. All Students who have passed the Matriculation examination are Members of the University of Durham; but the Classes are open to all persons not under 15 years of age, irrespective of sex.

The day Classes include Mathematics, Physics, Chemistry, Geology, Natural History, Mining, Mechanical Drawing, and Modern Languages. Evening Classes at nominal fees will be held during the forthcoming Session in Mathematics, Applied Mechanics, Steam, Elementary Chemistry, including Laboratory Work, Applied Chemistry, and Mining.

The Examination for open Exhibitions and for Matriculation will commence on Monday, September 22nd. The Classes will open on Monday, October 5th. Candidates for Exhibitions must send in their names on or before Saturday, September 19th.

Prospectus (post free) or Calendar (price 4d.) may be had on application to—

THEO. WOOD BUNNING, C.E., Secretary.

MERCHANT VENTURERS' SCHOOL,

BRISTOL.

The School will assemble on THURSDAY, September 17th, in the NEW BUILDINGS, in UNITY STREET.

The Teaching Staff of the Bristol Trade and Mining School is transferred to the Merchant Venturers' School.

This School provides a complete, progressive, and thorough education for those destined for an industrial career. Boys and young men are received at any age or at any stage of the courses of study arranged for the school. To obtain, however, the full advantages of the training offered, it is important that boys should enter at an early age.

The School contains five departments.

I.—A PRIMARY OR PREPARATORY DEPARTMENT for boys not less than nine years old.

II.—A SECONDARY DEPARTMENT for boys not exceeding 15 years of age, sub-divided into—

(a) A division for boys who are intended on leaving the School for employment in manufactures or the constructive trades, and also for those proceeding to advance studies in the higher departments of the School or elsewhere. The subjects taught are chiefly mathematics, applied sciences, and the English French, and German languages.

(b) A division for boys who are intended for mercantile or commercial employment, or for the English Civil Service. The subjects taught are selected as the most important for the preparation of youths for these callings, and include modern languages. The system of education in this division is similar to that of the schools of commerce in Germany.

The courses of study in the primary and secondary departments are so arranged that a boy may be expected to pass through them by the time he reaches 16 years of age.

III.—THE MINING AND TECHNICAL DEPARTMENT intend to prepare students above 16 years of age for careers connected with mining, engineering, the constructive trades, and manufactures.

IV.—THE CHEMICAL AND METALLURGICAL DEPARTMENT, providing for regular students of the School, and also for persons not otherwise connected with it, the means of studying (and gaining experience in) practical chemistry, analysis, and assaying. The laboratories are open to anyone, though not a student of the School, who desire to make special investigations connected with manufactures or mining.

V.—THE EVENING CLASSES, intended especially to enable those who have passed through the day school to continue their studies, are open to all persons of either sex above 16 years of age.

The Prospectus and full information on all matters connected with the School may be obtained on application to the Treasurer, Merchants' Hall, Bristol.

MINE "EL CALLAO," GUAYANA, VENEZUELA. 32,200 SHARES.

Gold in bars produced in the month of July, 1885, remitted to Messrs. Baring Brothers and Co., London—10,518.22 ozs.
DIVIDEND distributed for each share, 12 francs.
(Signed) A. LICCIONI, President.
(Signed) VICTOR J. GRILLET, Treasurer.

THE CANADA PACIFIC IRON AND STEEL RAIL COMPANY.

The Subscriber is desirous of opening communication with some party in England for the purpose of organising the above company.
One thousand acres of red hematite ore not far from the line of the C. P. R.

Address, HUBERT C. JONES, Solicitor, Brockville, Ontario, Canada.

SLATE QUARRIES IN GERMANY.—With the new duty of 15s. per ton, or about 25 PER CENT. of the value, English Slates can now only, with difficulty, be imported into Germany. Some owners of very large Slate Quarries near the Rhine, where there are no royalties to pay, OFFER the SALE of these QUARRIES to capitalists or merchants, or partnerships to work them together.
For particulars apply to "H. P." office of the "Mouvement Industriel," 32, Rue des Croisades, Brussels, Belgium.

STANDARD ORE CRUSHER—UNIVERSAL PULVERISER.

FOR SALE, the STANDARD ORE CRUSHER, 12 x 6, with Elastic Steel Connecting Rod.
Also, ONE 20 inch UNIVERSAL PULVERISER. Will reduce to powder any refractory material, wet or dry, Tin Ores, Quartz, &c.
Apply,—
C. E. HALL, STANDARD IRONWORKS, SHEFFIELD.

PIT SINKING, WINDING COAL, PUMPING, &c.

PORTABLE STEAM ENGINE FOR SALE, 25-horse power, with or without link motion reversing gear; a 14-horse power Ditto, also gear to wind and pump.

A 9 H. P. VERTICAL STEAM ENGINE, with link motion reversing gear (winding drum if required).

A 6 ft. pan MORTAR MILL, VERTICAL ENGINE, and BOILER combined, on carriage and travelling wheels.

Apply to—

BARROWS AND STEWART, ENGINEERS, DANBURY.

FOR SALE:—

ONE 50 inch and ONE 40 inch PUMPING ENGINES, with BOILERS and FITTINGS.

ONE 22 inch ROTARY ENGINE.

ONE 12½ inch HORIZONTAL ENGINE, with CAPSTAN and HAULING MACHINE attached.

All the above Engines are in first-class condition.

Several WATER WHEELS, from 20 to 60 feet diameter. STAMPS' AXLES and a large quantity of SECONDHAND MINING MATERIALS.

Apply to—

J. AND H. PEARCE, TAVY IRONWORKS, TAVISTOCK.

Second Edition. Just Published, price 9s. 6d.

A NEW GUIDE TO THE IRON TRADE,
OR MILL MANAGERS' AND STOCK-TAKERS' ASSISTANT;
Comprising a Series of New and Comprehensive Tables, practically arranged to show at one view the Weight of Iron required to produce Boiler-plates, Sheet Iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions. To which is added a variety of Tables for the convenience of merchants, including a Russian Table.
By JAMES ROSE,
Batman's Hill Ironworks, Bradley, near Bilston

OPINIONS OF THE PRESS.

"The Tables are plainly laid down, and the information desired can be instantaneously obtained."—*Mining Journal*.

"900 copies have been ordered in Wigan alone, and this is but a tithe of those to whom the book should commend itself."—*Wigan Examiner*.

"The Work is replete on the subject of underground management."—*M. BAKER, Colliery Proprietor*.

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, London.

HALF-PRICE—ONE SHILLING POST FREE.

A few copies with the covers slightly soiled of the

ENGLISH AND FOREIGN MINING GLOSSARY:
To which is added the SMELTING TERMS used in FRANCE, SPAIN, and GERMANY.
London: Published at the MINING JOURNAL Office, 26, Fleet-street, E.C. and all Booksellers.

JUST PUBLISHED, PRICE 1s.; BY POST, 1s. 1d.

GEOLOGICAL MAP OF CORNWALL

By BRENTON SYMONS, C.E., F.C.S.

A handsome SKETCH MAP, printed in FIVE COLOURS, and showing the Geological Formation, the Direction of the Lodes, and other useful details.

Will be forwarded on receipt of remittance.
MINING JOURNAL Office, 26, Fleet-street, E.C.

105,000 ACCIDENTS,

FOR WHICH

TWO MILLIONS have been PAID as COMPENSATION by the RAILWAY PASSENGERS' ASSURANCE COMPANY, 64, CORNHILL

ACCIDENTS OF ALL KINDS.

Paid-up and Invested Funds... £265,000—Premium Income... £235,000

CHAIRMAN—HARVEY M. FARQUHAR, Esq.

Apply to the Clerks at the Railway Stations; the Local Agents; or WEST END OFFICE—8, GRAND HOTEL BUILDINGS, CHANCERY CROSS;

OR AT THE

HEAD OFFICE—64, CORNHILL, LONDON, E.C.

WILLIAM J. VIAN, Secretary.

THOMAS TURTON & SONS,

Manufacturers of

CRUCIBLE CAST STEEL,

SHEAR, BLISTER, & SPRING STEEL,

CAST STEEL FILES, EDGE TOOLS, HAMMERS, PICKS,

AND ALL DESCRIPTIONS OF

TOOLS FOR MINING & ENGINEERING PURPOSES.

Railway Carriage, Wagon, & Locomotive

SPRINGS & BUFFERS,

Sheaf Works & Spring Works.

SHEFFIELD.

LONDON OFFICES:—90, CANNON STREET, E.C.

ESTABLISHED OVER 50 YEARS.

THE TUCKINGMILL FOUNDRY COMPANY,

TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS,

CAMBORNE, CORNWALL,

LONDON OFFICE: 85, GRACECHURCH STREET, E.C.

ENGINEERS, IRON AND BRASS FOUNDERS,

AND SOLE MAKERS OF

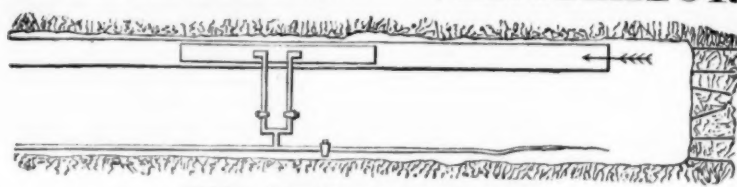
Teague's Patent VENTILATOR, Teague's Patent ROCK DRILL, Teague's Patent AIR COMPRESSOR, Teague's Patent FAN, Teague's Patent AIR ECONOMISER, Teague's PULVERISER and AMALGAMATOR, Stevens' and Cunnack's Patent PULVERISER; Sole Agents, for Devon and Cornwall, of Buckley's Patent PISTON, and Manufacturers of every description of PUMPING, WINDING, CRUSHING and STAMPING ENGINES, also all kinds of MINING MACHINERY, Shovels, and Miners' Tools, on the latest and most approved principles.

TEAGUE'S PATENT

DOUBLE-ACTING VENTILATOR.

TRADE MARK.

T.F.
Co.



TRADE MARK.

T.F.
Co.

THE MINER'S FRIEND

Will clear all Tunnels and Ends from noxious fumes in the shortest possible time, 10 minutes only being required to clear the largest blast; distance no object.

FIRST SILVER MEDAL MINING INSTITUTE OF CORNWALL, 1881.

FIRST BRONZE MEDAL ALEXANDRA PALACE, 1882.

FIRST SILVER MEDAL AT JUBILEE EXHIBITION FALMOUTH POLYTECHNIC, 1883.

Its success is guaranteed. At work on the principal Mines in Cornwall.

Reference invited to Capt. JOSIAH THOMAS, Dolcoath Mine, Capt. BISHOP, East Pool Mine, and others.

FULL PARTICULARS AND TESTIMONIALS FORWARDED ON REQUEST.

BRITISH AND FOREIGN SAFETY FUSE COMPANY,

WORKS: REDRUTH, CORNWALL,

MANUFACTURERS OF

PATENT SAFETY FUSE FOR ALL KINDS OF BLASTING PURPOSES,

For MINING & RAILWAY OPERATIONS,

ALSO FOR

ALL KINDS OF SUBMARINE WORK.

This FUSE is made for ALL CLIMATES, and of any length and sufficient water-resisting properties to ensure ignition at any depth.

For PRICE LISTS, SAMPLES, &c., apply at the Works, or

LONDON OFFICES—3 and 4, Adelaide Place, King William Street, London Bridge, E.C.

TRADE MARK.—TRICOLOUR COTTON (Red, White, and Blue), running through the column of Powder.

JOHN SPENCER, Globe Tube Works, WEDNESBURY.

TUBES



MANUFACTURER OF

WROUGHT IRON TUBES and

FITTINGS for Gas, Steam, and

Water; also HYDRAULIC and

COMPRESSED AIR TUBES, Gal-

vanised, White Enamelled inside,

or Coated by Dr. A. SMITH's process. GUN METAL and IRON COCKS and VALVES. COILS of all descriptions up to 500 ft. without joint. TUBES kept in Stock up to 6 inches diameter.

LONDON OFFICE AND WAREHOUSE: 3, QUEEN STREET PLACE, E.C.

SAMUEL OSBORN AND CO.,

MANUFACTURERS OF TOUGHENED

CRUCIBLE STEEL CASTINGS

Of all descriptions of special strength and solidity.

ALSO, MANUFACTURERS OF

BEST CAST STEEL FOR ENGINEERS AND MINERS' PURPOSES; FILES SAWS; HAMMERS; RAILWAY SPRINGS, &c.

STEEL SHEETS AND FORGINGS.

SOLE MAKERS OF

R. MUSHET'S CELEBRATED EXTRA BEST

TITANIC CAST STEEL FOR BORERS,

And of R. Mushet's Special Steel for Lathe and Planing Tools and Drills.

THE STEEL WHICH REQUIRES NO HARDENING.

CLYDE STEEL AND IRON WORKS, SHEFFIELD.

FRANCIS & JENKINS,

GREENFIELD WORKS, LLANELLY, SOUTH WALES.

Manufacturers of Steel-pointed Spades and Shovels, Draining and Grafting Tools, &c. Also Manufacturers of

COPPER WORKS LADLES,

To which special attention is given. Rabble Heads, Paddles, and every description of Light Hammered Work.

MINING MACHINERY, MILLING MACHINERY

Of the MOST APPROVED AMERICAN PATTERNS.

GOLD MILLS.

The California pattern of Gold Stamp Mill is universally accepted as the most perfect, economic, and efficient made.

We have over 1000 stamps in successful work in the various Western Gold Districts of the U.S. in Central and South America, Mexico, and Hungary.

SILVER MILLS.

Silver amalgamation in Pans is essentially an American system evolved after years of work on the rich silver mines of Nevada.

We have over 600 Stamps, with necessary pans, settlers, roasting furnaces, &c., all of our own manufacture, at work in different silver camps of the United States, Mexico, and South America, Philippine Islands, Asia, Chile, and Central America.

CONCENTRATION MILLS

Of the most approved German pattern and arrangement, or with Stamps and Frue Vanner Concentrators for low grade silver ores, light in lead. We have over 20 large German pattern mills at work on lead, zinc, or copper ores, and numerous Vanner mills on ores never before successfully concentrated.

Notably among the large Concentrating Works built by us we mention ANACONDA WORKS, Montana daily capacity 750 tons of copper ore.

Mining Pumps, Cornish pattern, of the largest sizes. Hoisting Engines, from 4 h.p. up to the largest direct-acting engines to sink 3000 feet.

SMELTING WORKS.

We have 80 Water Jacket Smelting Furnaces in use from 30 in. circular up to 33 in. by 80 in. for copper, lead, and silver smelting. Special High Jacket Furnaces for copper ores.

Engines, plain slide valve, Corliss or compound Corliss Boilers. Leaching Mills, Hallidie Wire Rope Tramways. White, Howell, Bruckner, and Stetefeldt Roasting Furnaces, &c.

We have had twenty years experience in the manufacture solely of MINING MACHINERY, and have special facilities for shipping to all foreign parts through our New York Office, where all details of clearance, shipment, and insurance are conducted. Our machinery is already well known in Mexico, Peru, Chili, Venezuela, Honduras, and other South American countries.

Correspondence solicited. Descriptive Circulars and Catalogues on application.

FRASER AND CHALMERS.

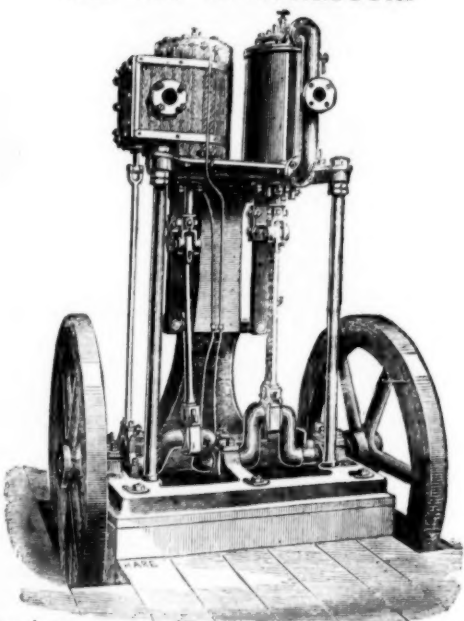
PRINCIPAL OFFICE AND WORKS.

FULTON AND UNION STREETS, CHICAGO, ILL., U.S.A.

BRANCH OFFICES.

No. 2, WALL ST., NEW YORK. 248, EIGHTEENTH STREET, DENVER, COL. No. 11, CALLE DE JUAREZ, CHIHUAHUA, MEX.

THE "Champion" Rock-borer AND AIR COMPRESSOR.



As an instance of the actual work done by this Machinery in various kinds of ground, some of it the hardest rock, it may be mentioned that in Cornwall, irrespective of the work performed by the "Champion" Rock-borers and Air-compressors purchased by various Mines, the drivage, rising, sinking, and stopping done by contract by the Proprietor with his own Machinery now amounts to over 1500 fathoms.

Several of these Air-compressors, ranging from 3½ to 12 tons in weight may be seen in constant work in the Camborne Mining District.

R. H. HARRIS,

ENGINEER,

63, QUEEN VICTORIA STREET, LONDON.

PHILLIPS MONTHLY MACHINERY REGISTER—
THE BEST MEDIUM IN THE KINGDOM
FOR THE
PURCHASE OR SALE
OF
NEW OR SECONDHAND MACHINERY

Subscription, 4s. per annum, post free.

PUBLISHED AND PROPRIETOR,
CHARLES D. PHILLIPS, NEWPORT, MON.

REDUCTION IN PRICES.

CLAYTON AND SHUTTLEWORTH, STAMP END WORKS, LINCOLN, AND 78, LOMBARD STREET, LONDON,

Begin to announce an Important Reduction in the price of their Portable Steam Engines and Threshing Machines, and will be pleased to send their Revised List to any address on application.



GOLD MEDAL AND FIRST CLASS CERTIFICATE at the Calcutta International Exhibition 1883-4.
THE ONLY GOLD MEDAL
AWARDED FOR
PORTABLE STEAM ENGINES.

The Royal Agricultural Society of England have awarded Every First Prize to CLAYTON and SHUTTLEWORTH for Portable and other Steam Engines since 1863, and Prizes at every Meeting at which they have competed since 1849.

CATALOGUES IN ENGLISH AND IN ALL EUROPEAN LANGUAGES.

Steam Engines, portable & fixed,

For Coals, Wood, Straw, and every kind of Fuel.

OVER 22,500 SOLD.

Threshing Machines.

OVER 20,500 SOLD.

Straw, Corn, and Hay Elevators.

Chaff Cutters for Steam Power.

Grinding Mills.

Saw Benches.

Traction Engines, &c.

GOLD MEDALS AND OTHER PRIZES have been awarded to CLAYTON AND SHUTTLEWORTH at all the important International and Colonial Exhibitions, including LONDON, 1851 and 1862; PARIS, 1855, 1867, and 1878; VIENNA, 1857, 1866, and 1873.

POTENTITE.

This unrivalled Explosive, as manufactured by the New and Perfected Machinery of the Company, is perfectly safe for transit, storage, and use, and is employed in every description of Mining or Quarrying Work, for Tunnelling, Pit Sinking, Engineering Work, and Submarine Operations, with the most complete success and satisfaction.

Potentite does NOT contain its own MEANS OF IGNITION, is free from Nitro-Glycerine, and its SAFETY has been specially demonstrated by public experiments.

Its strength is unequalled.

Its action is certain.

In action it gives off neither flame, smoke, nor offensive smell. By its use labour is economised, as work can be resumed immediately after the shot is fired.

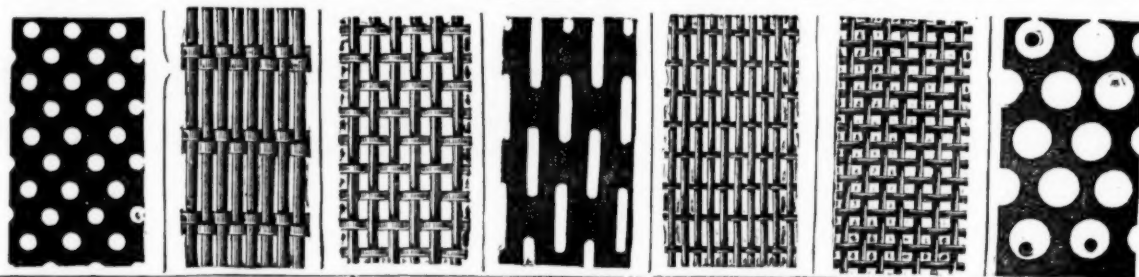
POTENTITE is specially adapted for export to hot climates, as it is unaffected by heat, and is free from dangerous exudations.

POTENTITE IS THE SAFEST STRONGEST, AND WORK FOR WORK, CHEAPEST EXPLOSIVE IN THE MARKET.

For particulars and prices, apply to—

THE POTENTITE COMPANY, LIMITED.

HEAD OFFICE—3, FENCHURCH AVENUE, LONDON, E.C.



Extra Treble Strong Wire Cloth and Perforated Metals in Steel, Iron, Copper, Brass, Zinc, Bronze.

Made in all Meshes and Widths.

N. GREENING & SONS, Limited,

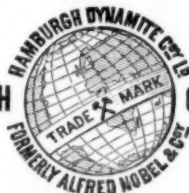
Wire Manufacturers and Metal Perforators,
WARRINGTON.

Jigger Bottoms, Trommels, Cylinder Covers, Riddles, Sieves for Diamond, Gold, Silver, Copper, Lead and Tin Mines.

Samples and Prices free on application.

NOBEL'S DYNAMITE.

HAMBURG



GERMANY

MANUFACTURED AND SOLD BY THE

DYNAMIT-ACTIEN-GESELLSCHAFT VORMALS ALFRED NOBEL & CO., HAMBURG. (HAMBURG DYNAMITE COMPANY)

Formerly ALFRED NOBEL & CO.

Factories { KRÜMMEL AND SCHLEBUSCH, IN GERMANY.
ZAMKY AND PRESBURG, IN AUSTRIA HUNGARY.

London Office: EASTCHEAP BUILDINGS, 19, EASTCHEAP, E.C.

THE COLLIERY READY-RECKONER AND WAGES CALCULATOR

By JAMES IRELAND

"Will be the means of preventing many disputes between pay clerks and colliers."—Mining Journal.

To be had on application at the MINING JOURNAL Office, 25, Fleet-street, E.C.

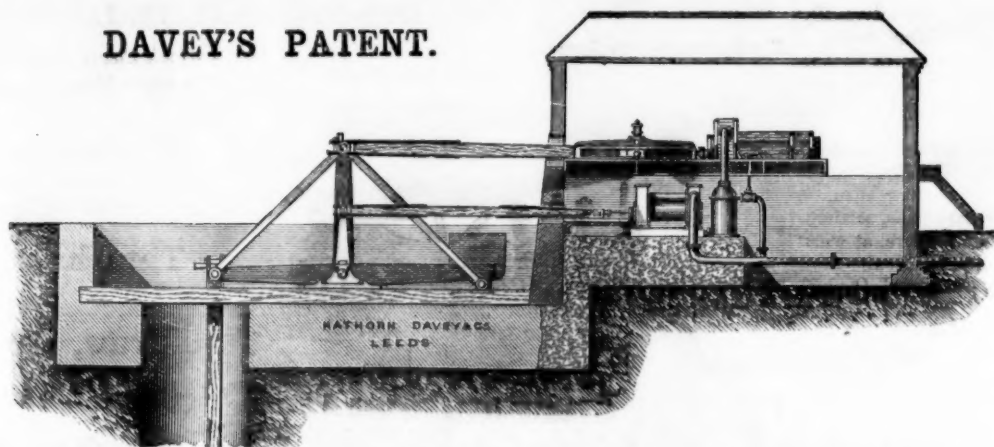
HERBERTON (WILD RIVER) TIN LODES, NORTH QUEENSLAND.

Every information relative to the progress of lode-tin mining in the Wild River district (termed by geologists "The Cornwall of Australia") can be obtained by communicating with the undersigned.

"Herberton Advertiser" Office Herberton, September, 1882.

HORIZONTAL CORNISH ENGINE.

DAVEY'S PATENT.



COMPOUND PUMPING ENGINES.

IMPROVED PLUNGER LIFTS.

This is an economical and cheap Engine for working Cornish pitwork in Metalliferous Mines. The parts of the Engine are not heavy—it is, therefore, easily transported. The distribution of steam in the Engine is precisely the same as that of an ordinary Vertical Cornish Engine, and it works with the same amount of economy. It takes steam only on the indoor stroke, when the spears are being lifted. During the outdoor stroke the weight of the spears lift the water, so that the action of the Engine and the arrangement of the Pumps are precisely similar to that of the ordinary Cornish Engine. This Engine, however, is only about one-half the weight of a Cornish Engine of the same power, whilst the buildings and foundations required are not more than half the cost. This Engine is provided with the differential gear, enabling it to be handled by inexperienced men—it is, therefore, especially suitable for Foreign Mines.

PUMPING MACHINERY OF ALL KINDS.

CATALOGUES ON APPLICATION.

HATHORN, DAVEY & Co., LEEDS.

BELL'S ASBESTOS.

THE LATEST DEVELOPMENTS IN ASBESTOS.

Bell's Asbestos Metallic and India-Rubber Woven Sheeting

A Jointing Material possessing many times the Tensile Strength of anything hitherto manufactured for the purpose.

The Asbestos and India-rubber Woven Sheeting, introduced by us some years ago, has proved so great a success that all the manufacturers of Asbestos in this country and on the Continent have imperfectly imitated it. That material, though superior to everything previously introduced for many kinds of Steam Joints, does not bear the strain put upon it in some cases, and therefore in order to meet the requirements of every class of steam user, a superior article is now offered to the public. The improvement consists in the manufacture of a fabric composed partly of finely spun Asbestos Yarn, and partly of a fine Wire of suitable alloy to impart great tensile strength, retainable under the highest temperature, and rendering the material capable of resisting the highest pressures hitherto attained. A sheet of 1-ply will serve where 2-ply of the Asbestos Woven Sheeting without wire are necessary.

BELL'S ASBESTOS METALLIC AND INDIA-RUBBER WOVEN TAPE.

The material above described is made up in the form of Tape for Cylinder Covers, Manhole and Mudhole Joints, &c. All liability to breakage is overcome by the introduction of Wire in the manufacture.

BELL'S ASBESTOS METALLIC CLOTH PACKING.

This material is equally suitable for high or low pressures. By this special combination of Asbestos and Metal, friction is reduced to a minimum, and as a heat-resisting packing it is perfect. The introduction of wire serves as a binder to the Asbestos, and prevents its fraying away by the friction of the moving parts. This Packing may be used in either wet or dry steam. It possesses the greatest elasticity, strength, and durability ever attained in steam packing, and is the surest remedy for worn glands and uneven rods.

CAUTION.

These three materials are manufactured under the Turner-Bell Patent, and the Rights will be Strictly Protected by Legal Proceedings against all Infringers.

ASBESTOLINE

R.D.

—THE BEST LUBRICANT FOR ALL KINDS OF MACHINERY ASHORE OR AFLOAT.—

2/3 Per lb.

1 LB. EQUAL TO 2 GALLONS OF BEST OIL.

CAUTION.

These three materials are manufactured under the Turner-Bell Patent, and the Rights will be Strictly Protected by Legal Proceedings against all Infringers.

ILLUSTRATED PRICED CATALOGUE FREE ON APPLICATION TO

BELL'S ASBESTOS WORKS, SOUTHWARK, LONDON, S. E.

OR THE DEPOTS—

118a, SOUTHWARK STREET, S.E.

Victoria Buildings, Deansgate, MANCHESTER.

11 and 13, St. Vincent Place, GLASGOW.

7, John Bright Street, BIRMINGHAM.

46, James Street, Butte Docks, CARDIFF.

21, Ritter Strasse, BERLIN.

NOBEL'S DYNAMITE



Manufactured and sold by
NOBEL'S EXPLOSIVES COMPANY, LIMITED
(FORMERLY THE BRITISH DYNAMITE COMPANY LIMITED).

Head Office: 149, West George Street Glasgow.

EXPORT AGENTS: JAMES THORNE AND CO., 85, GRACECHURCH STREET, LONDON, E.C.

FACTORIES: ARDEER WORKS, STEVENSTON, Ayrshire.

WESTQUARTER WORKS, POLMONT STATION, STIRLINGSHIRE.

REDDING MOOR WORKS, POLMONT STATION, STIRLINGSHIRE.

Supplies may be obtained from any of the following District Agents of the Company in Great Britain:—

HENRY KITCHIN and CO., 46, Lowther-street, Whitehaven.
F. H. EDWARDS, Forth House, Newcastle-on-Tyne.
JAMES M. ARMSTRONG and CO., Middlebro'-on-Tees.
ALBERT RICKETTS, Dean-lane, Bedminster, Bristol.
B. READ, Reforme, Portland, Dorsetshire.
ALFRED ORMEROD, Bretherton's-row, Wallgate, Wigan.
GEORGE ROBERTS George-street, Gloucester.
J. H. BEAN and CO., 6, Albion-street, Leeds.
Wm. RICH and SONS, 4, Bassett-street, Redruth, Cornwall.
CROSS BROTHERS, 21, Working-street, Cardiff.
WILLIAMS and WHITE, 6 and 7, Baker-street, Aberystwith.
ROBERTS, LEWIS, and CO., Portmadoc, North Wales.
W. J. PARRY, 3 and 4, Williams'-court, Bethesda, North Wales.
DAVID EVANS, Glynrhonwy, Llanberis, Caernarvon, North Wales.

HENRY E. TAYLOR, 15, Newgate-street, Chester.
T. G. MARSH, 2, Priory-street, Dudley.
TODHUNTER and ELLIOT, Market-place, Douglas, Isle of Man.
ROBERT HAMILTON, 29, St. James-square, Edinburgh.
JOHN DONALD, 4, Belmont-street, Aberdeen.
WILLIAM WATSON, Bank-street, Coatbridge.
ROBERT HAMILTON, Douglas-street, Dunfermline.
JOHN D. M'JANNET, Woodlands, Stirling.
GEORGE STEPHEN and SON, Castle-street, Dundee.
WAUGH, WALSH, and CO., 73 and 75, Church-lane, Belfast.
CLOHERTY and SEMPLE, Merchants'-road, Galway.
COOKE BROTHERS, 67, Patrick-street, Cork.
SAMUEL BOYD, 46, Mary-street, Dublin.
JOHN LEALE, St. Sampson's Bridge, North End, Guernsey.

TONITE, OR COTTON POWDER,

IS RECOMMENDED TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, AS BEING THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES. TONITE is the most efficient and economical blasting agent ever invented, and is largely in demand. It does not contain any Nitro-glycerine, and is, therefore, exempt from the dangers of exudation, or of freezing and its attendant process of thawing.

The Company manufacture

PATENT DETONATORS

of a quality much superior to the foreign article. Also supply Safety Fuse and Electric Firing Appliances of best description. The trade supplied on favourable terms.

ADDRESS—THE COTTON POWDER COMPANY (LIMITED)

23, QUEEN ANNE'S GATE, LONDON, S.W.

WORKS: FAVERSHAM, KENT.

Agents: DINEEN and Co., Leeds; DAVID BURNS, Haltwhistle; R. J. CUNNACK, Helston, Cornwall; J. and W. SMITH, Chapel-en-le-Frith; W. VEITCH, Jedburgh, N.B. W. HARRISON, Barrow-in-Furness; HUNTER and FOTHERINGHAM, Glasgow.

DYNAMITE!

The Rhenish Dynamite Company

Are prepared to supply their celebrated Dynamite, of the highest quality and greatest strength allowed by the Explosives Act.

OFFICES.—

1, Coleman Street Buildings, Moorgate Street, London, E.C.

Medals
LONDON, 1862.
CHILI, 1875.
PARIS, 1878.

Silver Medal
MELBOURNE,
1880.
HIGHEST
AWARD.

ESTABLISHED 1848.

W. BRUNTON & CO.,
35, QUEEN VICTORIA ST., LONDON,
SAFETY FUSE MAKERS.

WORKS:

PENHELICK SAFETY FUSE WORKS, CAMBRIAN SAFETY FUSE WORKS,
REDRUTH. WREXHAM.

SAFETY FUSE OF ALL DESCRIPTIONS SUPPLIED IN ANY LENGTH REQUIRED.

Original Inventors
of
Guttapercha Fuses.

Brunton's
Taped Guttapercha
Safety Fuse is
the Best Fuse for
use with Dynamite
in wet ground.
Fits the
Detonator without
unlapping.

MANCHESTER WIRE WORKS.

NEAR VICTORIA STATION, MANCHESTER.
(ESTABLISHED 1790).

JOHN STANIAR AND CO.,

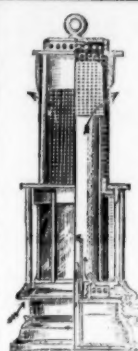
Manufacturers by STEAM POWER of all kinds of Wire Web, EXTRA TREBLE STRONG for
LEAD AND COPPER MINES.

Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.

EXTRA STRONG PERFORATED ZINC AND COPPER RIDDLERS AND SIEVES.

PERFORATED IRON, STEEL, COPPER, AND ZINC PLATES IN VARIOUS DIMENSIONS AND THICKNESSES.

Shipping Orders Executed with the Greatest Dispatch.



ESTABLISHED 1820.
JOSH. COOKE AND CO.,
SAFETY LAMP

AND
GAUZE MANUFACTORY,
Honourable Mention, Paris Exhibition, 1878
Illustrated Price Lists free, by post or otherwise.

MIDLAND DAVY LAMP WORKS,
Belmont Passage, 203, Lawley-street,
BIRMINGHAM.

Makers of Williamson's Double Safety Lamp,
Williamson's Patent Double Safety Lamp shown half in
section.

Medal—For Improved Invention—London, Kensington, 1874
Ditto—Excellence of Workmanship—Wrexham, 1867.

ALEX. WILSON & CO.

VAUXHALL IRONWORKS.

L O N D O N , S . W . ,

MANUFACTURERS OF

THE VAUXHALL DONKEY PUMPS.

THE EXCELSIOR DIRECT-ACTING
PUMPS.

Air Compressors.

Winding Engines.

HOISTING MACHINERY.

ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

THE
BEST METAL FOR BUSHES,
BEARINGS,
SLIDE VALVES,
And other wearing parts of Machinery.

PUMPS, PLUNGERS,
CYLINDERS, &c.

PHOSPHOR BRONZE
WIRE, TUBES
SHEET, RODS
TOOLS &c
STEAM
FITTINGS

SOLE
MANUFACTURERS

UNDER PATENTS

THE

PHOSPHOR BRONZE

COMPANY, LIMITED,

SUMNER STREET, SOUTHWARK,
LONDON, S.E.

WILLIAM BENNETTS.

PATENT MINERS'

SAFETY FUSE
MANUFACTURER.



This manufacture embraces all the latest improvements for use in
Blasting in Mines, Quarries, or for Submarine Purposes; and is
adapted for exploding Gunpowder, Dynamite, or any other Explosive;
and is made suitable for exportation to any part of the world.
Price Lists and Sample Cards on application.

All communications to be addressed—

ROSKEAR FUSE WORKS,
CAMBORNE CORNWALL.



REGISTERED TRADE MARK
A RED THREAD RUNNING THROUGH THE CENTRE OF THE FUSE.

THE MINING RECORD Only \$5.00 a year
Foreign Postage.
61, BROADWAY, NEW YORK.
the ONLY PAPER in the United States that gives FULL LATEST ACCOUNT
from all the GREAT GOLD, SILVER, IRON, and COAL MINES OF AMERICA.
ORDERS EXECUTED FOR MINING STOCKS. Information free.
ALEX. ROBT. CHISOLM, Proprietor.
London Office—H. CARTER, Manager, 36, King William-street, London.

Awarded the ONLY Gold Medal for Stonebreaker at the International Inventions Exhibition, in competition with all other makes.

TO BE SEEN AT WORK AT THE INVENTIONS EXHIBITION, No. 1129, GROUP 10, WEST GALLERY, One 8 inch by 6 inch STONEBREAKER, can be worked by hand; and One 6 inch by 1½ inch PULVERIZER OR FINE CRUSHER.

THE BLAKE-MARSDEN 1884 Patent Lever Hand-Hammer Action Stonebreakers and Ore Crushers, NEW PATENT FINE CRUSHER OR PULVERIZER.

Fitted with Patent Reversible Cubing and Crushing Jaws in Five Sections, and with Surfaced Backs, requiring no White Metal in fixing. Crucible Cast Steel Levers and Toggle Cushions, Brass or Gun Metal Bearings throughout.

OVER 5000 IN USE.

PULVERIZER TESTIMONIALS.

"The Fine Crusher we had from you in August last is an excellent pulverizer, and rapidly reduces hard material to a fine powder."

"The Pulverizer has now been working two months, and answers its purpose most satisfactorily." "It is with the greatest satisfaction that we write these few lines in order to acquaint you that the 12x3 Pulverizer you provided us with, has quite fully given the results you represented to us, completely reducing our material to an impalpable powder at one operation. Should you refer any one to us we should have much pleasure in recommending the machine."

"I have great pleasure in bearing testimony to the merits and capabilities of your patent combined fine crusher and sieving apparatus. I have tried it on a variety of ores and minerals, and it pulverizes them with equal success. You can put in a small paving stone and bring it out like flour."

"In reply to your favour, I have much pleasure in informing you that the 12x3 Pulverizer we had from you is giving us every satisfaction. The material we are operating on is an exceptionally hard one. I am well satisfied with its working."

"Our experience is that the motion and mechanical arrangements of your machine are the best for pulverizing that we have ever met with."

"The reports from our mines as regards the working of your Fine Crusher (20x5) recently supplied are very favourable, although we cannot quote you exact figures. On being got into position it was tried by hand, with the result that it made short work of the biggest pieces of ore we put into the hopper. You might say how long you would take to deliver another of the same size."

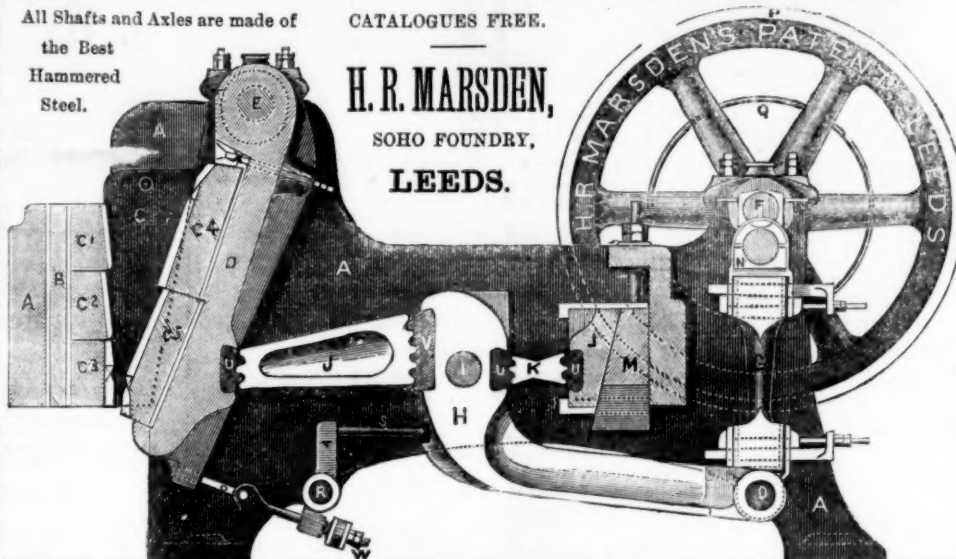
"As I once before stated, your machine is a perfect pulverizer."

"I am sure the machine will be a success, and a great one, and there is any amount of demand for such a machine. We can work it with 22 lbs. of steam, and our engine, which is a 12 h.p., plays with the work, in fact we run the Stonebreaker and the Pulverizer both together with 35 lbs."

All Shafts and Axles are made of the Best Hammered Steel.

CATALOGUES FREE.

H. R. MARSDEN,
SOHO FOUNDRY,
LEEDS.



THIS HAND-HAMMER ACTION STONEBREAKER TAKES MUCH LESS POWER THAN ANY OTHER EXTANT.

STONEBREAKERS AND ORE CRUSHERS TESTIMONIALS.

"We have great pleasure in testifying to the efficiency of the 15 in. by 8 in. Lever Hand Hammer Stone Breaker you supplied us with. We find that our 4 h.p. Engine with case drives it 100 revolutions per minute, and breaks six tons per hour of the hardest 'Diorite' Whinstone: the sample is much before any hand-broken we have ever got done. Our Mr. P. J. GRAHAM, C.E., who was Surveyor of Highways for ten years, before joining our firm, says: 'It is by far the most economical machine I have ever had to do with; he had two of your former make, and he of another firm's make; compared with these four machines your new patent gives the following advantages:—The horse-power required to drive is exactly 40 per cent. less. The sample of the broken material is so far superior to that broken by other machines, and even to that broken by hand that we can make no comparison. It is by far the best sample we have ever seen.'"

"I now order three of your Stone Crushers, 15 by 10, to be of your very best construction, and to include two extra sets of Jaws and Checks for each. The last two 24x13 machines you sent me, which are at work in this colony, are doing very well. You will soon find that the railway contractors will adopt your machines in preference to the colonial ones—two of which I have. I know which have not given very good satisfaction. Once they know of your thoroughly, I believe you will do a good trade with the colonies. For reference of the high character of your constructions you can refer to me as having used them with the very best results, both in New Zealand and this colony, and much prefer them to the colonial article, both in point of construction and in liability to go out of order. The material we are crushing is very hard blue stone, for railway ballast purposes. Push on with the order as quickly as possible. I do not think it necessary to have any engineering inspection. I have brought your machines prominently under the notice of all large contractors in the colony, likewise the Government. Many of the contractors have spoken to me in reference to their capabilities, and I could only tell them that they are by far and away the best and most economical I ever used. The very fact of me having purchased eleven from you at various intervals and various times, and two above 12 years ago, and having tried all the other makers is sufficient guarantee of the capabilities and the working of your machines. Yours in every way surpass all others."

JOHN CAMERON'S

FLY-WHEELS ON BOTH SIDES.

SPECIALITIES ARE HIS

STEAM PUMPS

FOR

COLLIERY PURPOSES.

Specially adapted for forcing Water any height

ALSO, FOR

SINKING, FEEDING BOILERS AND STEAM FIRE ENGINES,

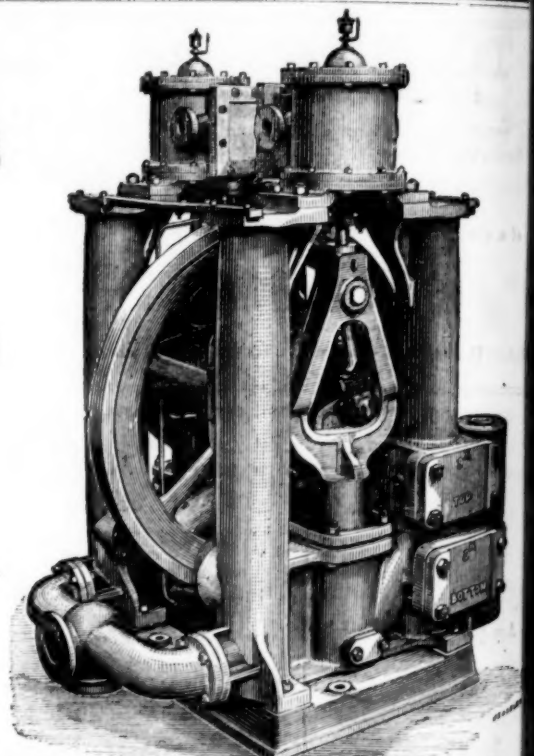
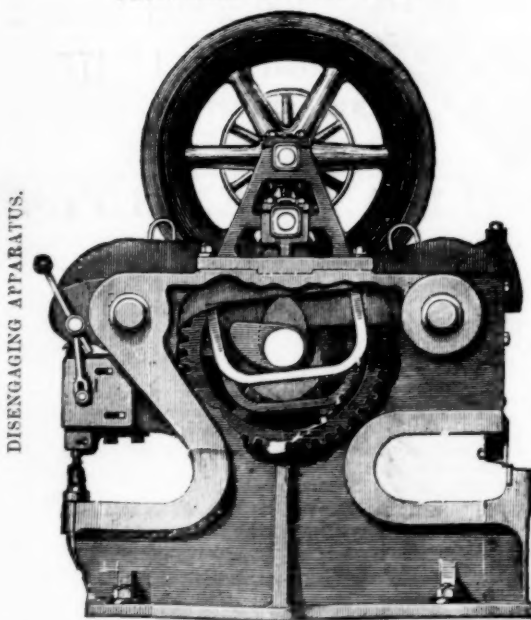
Of which he has made over 9000.

ALSO, HIS

PATENT CAM AND LEVER PUNCHING & SHEARING MACHINES.

Works: Oldfield Road, Salford, Manchester.

AGENTS { For LONDON and DISTRICT—PRICE and BELSHAM, 52, QUEEN VICTORIA STREET, E.C.
For NEWCASTLE and EAST COAST—E. BECKWITH AND CO., BONNERSFIELD, SUNDERLAND.



By a special method of preparation this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

HEPBURN AND GALE, LIMITED,

TANNERS AND CURRIERS, LEATHER MILL BAND AND HOSE PIPE MANUFACTURERS, LONG LANE, SOUTHWARK, LONDON.

Prize Medals, 1851, 1853, 1878, for MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

INCREASED VALUE OF WATER-POWER.

MACADAM'S VARIABLE TURBINE.

This Wheel (which is now largely in use in England, Scotland, and Ireland) is the only one yet invented which gives proportionate power from both large and small quantities of water. It can be made for using a large winter supply, and yet work with equal efficiency through all variations of quantity down to a fifth, or even less if required. It is easily coupled to a steam-engine, and in this way always assists it by whatever amount of power the water is capable of giving, and therefore saves so much fuel.

This Turbine is applicable to all heights of fall. It works immersed in the tail-water, so that no part of the fall is lost, and the motion of the Wheel is not affected by floods or back-water.

These Turbines are at work in nearly every country in England. Apply to—**MACADAM BROTHERS AND CO., BELFAST.**

ESTABLISHED 1825.

EDWIN LEWIS AND SONS,

Patent Tube Works, MONMORE GREEN and Britannia Boiler Tube Works, ETTINGSHALL, WOLVERHAMPTON.

MANUFACTURERS OF

Lapwelded & Buttwelded Wrought-iron, Steel, or Homogeneous Tubes

FOR EVERY

COLLIERY OR MINING PURPOSE.

J. WOOD ASTON AND CO., STOURBRIDGE

(WORKS AND OFFICES ADJOINING ORADLEY STATION),

Manufacturers of

CRANE, INCLINE, AND PIT CHAINS,

Also CHAIN CABLES, ANCHORS, and RIGGING CHAINS, IRON and STEEL SHOVELS, SPADES, FORKS, ANVILS, VICES, SCYTHES, HAY and CHAFF KNIVES, PICKS, HAMMERS, NAILS, RAILWAY and MINING TOOLS, FRYING PANS, BOWLS, LADLES, &c., &c.

Crab Winches, Pulley and Snatch Blocks, Screw and Lifting Jacks, Ship Knees, Forgings, and Use Iron of all descriptions.

WELDED STEEL CHAINS

FOR CRANES, INCLINES, MINES, &c., MADE ALL SIZES.